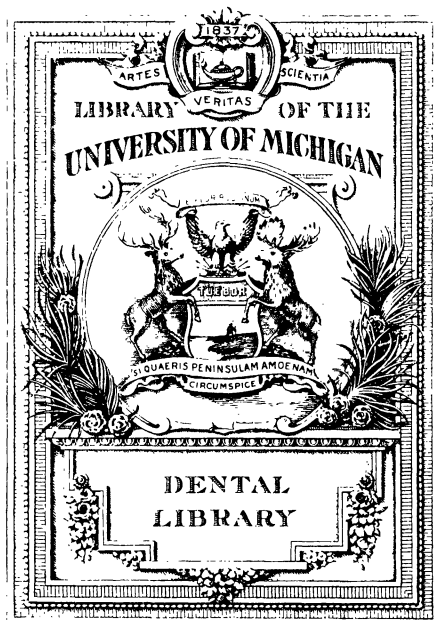


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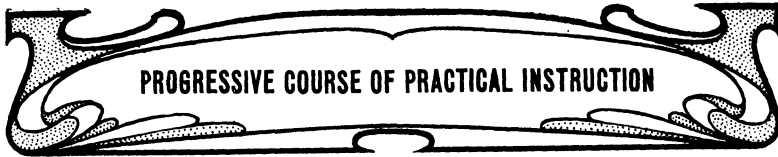
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## PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.,  
(Professor of Prosthetic Dentistry and Technics, School of Dentistry, University of Illinois.)

### SIZE, SHAPE AND SHADES.

#### CHAPTER XI.

To be able to discern when to apply a long or short tooth, or when to add artificial gum or rest the cervical portion of the artificial tooth partly into the gums of the patient, demands a judgment which can only be ripened by the benign influence of both hard study and experience. These various cases awaken in us a desire to closer observe the underlying facial lines and points. If we choose the wrong method we are sure to get results antagonistic to the law of correspondence, and this changeable rule in nature is understood only after we have diligently observed, noted and compared.

When to use gum section teeth, plain teeth or add artificial gum involves a knowledge of faceology and the circumstances or relation which indicate any of these several methods are not so difficult when we comprehend some of the few underlying principles of facial aesthesia.

There are innumerable axioms and so called rules for selecting the length of teeth for an edentulous mouth, but few indeed are worth much when you are confronted by a difficult case. The best possible rule has many violations, when applied to dental prosthesis. This field or department of dentistry will always remain conjointly—art and science. It will never resolve itself into definite, set or exact rules, hence cannot be registered as a science *in toto*; and yet it has many features which demand absolute attention to science and its prosthetic departures are founded on mathematical and mechanical rules. Notwithstanding these facts the tasks call for a thorough understanding of art in its broadest sense.

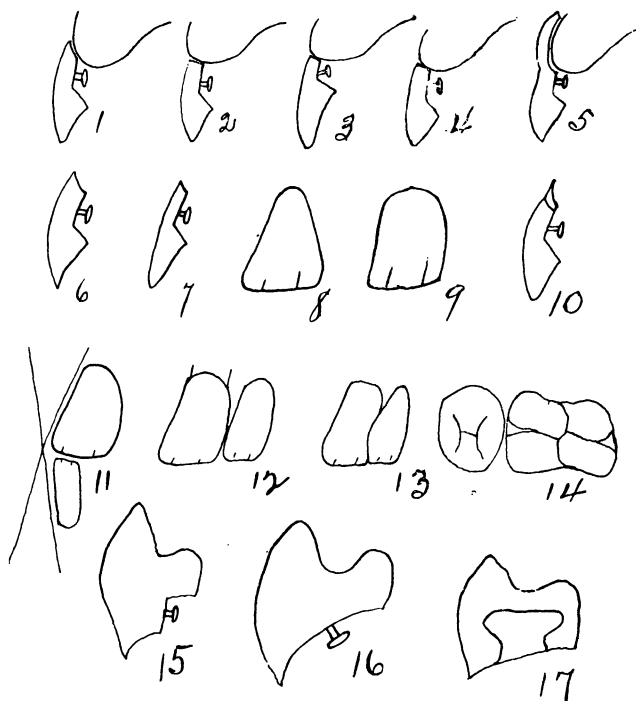
The edentulous mouth presents many of our most perplexing propositions. It has been advised by many competent prosthetic practitioners that before extracting the teeth which still preserve the maxillary antagonism, that it is wise to measure the distance from the center of the curve of the chin to the tip of the nose, and after the teeth are extracted to reproduce this distance between chin and nose, in order to give to the patient the original length of the lower third of the face. This is accomplished by placing between the alveolar ridges of superior and inferior jaws a sufficient amount of modeling compound to distend or open the jaw considerably further than is normally required—then request patient to gradually close the jaws, and when the distance is as previously registered have patient hold jaw at this point, and with syringe of cold water dash upon compound and remove same and place the matrix or compound between the plaster casts or models on the articulator. Register articulator at this definite point and proceed to arrange teeth of such length and shape and shade as complement the area of the alveolar ridge and facial outlines of patient.

Some dentists advocate that it is good practice to arrange the artificial teeth in exactly the same position as the patient's natural teeth were, and in order to arrive at a certain model to accomplish this they have patient bite into a softened wax and after removing the wax containing the indentations made by the teeth cool wax and extract the teeth; then place the extracted teeth into their respective places in the wax and pour plaster on the free or root ends **and arrange in the articulator.** Then put entirety into warm water and remove the wax, and you now have the patient's natural teeth in the exact positions they occupied in the mouth. This model of the teeth now serves as a guide in a positive reproduction of the original denture.

It will be of considerable importance to such of our practitioners as are obliged to have their artificial teeth sent by mail, and who must depend on the dental depots to fill mail orders, to have a concise table or plan to facilitate ordering.

The clerk at the depot can give better returns if he fully understands the character of the tooth desired and again this brief description will save both time of dentist and clerk. It is a known fact that all dentists in ordering teeth fail to clearly tell what they desire. This is not only true of those who write for teeth, but equally true of those who call in person. No. 1 in diagram is known

as a tooth with "long ridge lap," and rides or partly covers the alveolar ridge. This tooth is used mostly in cases where the alveolar ridge is quite completely absorbed and also in case requiring pink rubber gum. No. 2 is called tooth with "short ridge lap," and rests immediately below the alveolar ridge in upper cases or directly above alveolar ridge on lower cases. This form of tooth is employed considerably in making temporary sets and such permanent cases as will not admit of much padding between lip and alveolar



ridge. Patients whose upper lip is quite full and whose facial outlines will not tolerate any protrusion of upper or lower lip require teeth as No. 2 indicates.

In figure No. 3 we have the "long bite" tooth, or a tooth which when the jaws are closed considerably overlaps the incisal portion of the lower teeth. This form of a tooth should be used in patients who require a marked compensating curve in the dental arrangement. They are generally indicated in mental or refined temperaments.

No. 4 represents the "short bite" tooth, and is seldom required, excepting when the entire length of the tooth is not sufficient to allow long bite. Again it is serviceable in cases of lymphatic temperament where patients move the jaws from side to side in a pronounced manner.

Figure No. 5 shows a sectional view of a gum section, and demonstrates the use in cases requiring a liberal pad under the lips. These gum section teeth at one time were in great demand, but of late years the profession has discarded them because in their use complete freedom to get accurate occlusion and articulation with remaining lower natural teeth has stamped them as impracticable. In full cases—both upper and lower—and where the alveolar ridge is thoroughly absorbed they are splendid substitutes, and their lifelike gum makes them especially valuable where the lips in laughter disclose the cervical portion of the teeth.

The 6th figure, known as the "bow faced" tooth, should be used when the remaining teeth are of an outline of similar character. This tooth is called for mostly for partial cases. When patient has lost a central and an artificial one is desired it may be very important to have it either "bow faced" or "flat faced" as represented in No. 7.

Then we have in practice a tooth called the "bell shaped," No. 8, because of its similarity to a bell, and this form is common to cuspids, bicusps, molars and centrals as well. Generally found in tall and graceful persons; most common to the female figure.

The male figure reverts to the form as shown in figure No. 9. When the tooth is short it symbolizes the motive and sometimes the lymphatic temperament.

In figure No. 10 we have what is known as the "rooted tooth," and so called because it has at the cervical portion a short ledge representative of the root. This tooth is used in cases where the pink rubber is calculated to overlap the artificial tooth and assist in its retention in the vulcanite.

The arrangement of the teeth is essentially a matter of both art and science. Art in that no given rule can define the exact position or inclination, and science in that definite anatomical outlines are to be observed and exact mechanical principles are to be regarded.

The length of the tooth, as already cited, should be in harmony with the patient's face, and when in trial plate form the patient should be requested to demonstrate the actions of the lips to deter-



mine the correctness of the artificial denture. When the patient speaks the words as "at or ate" with short or long sound of "a" the lips should disclose about half the labial surface of the anterior six upper and anterior six lower. While with words having the long sound of "o" as in "oval" or "open" the lips should hide the entire artificial teeth save the insisal edges. The inclination of the four opposing teeth should complement an X as indicated in figure 11. Besides the artificial substitutes should reproduce the central and canine eminence, and have the lateral a trifle short as shown in figure 12. And if the lateral on one side of the jaw slightly overlaps the central as in figure No. 13, a satisfactory result is obtained.

The teeth as we now get them from the supply houses do not fully comply with requirements; in many particulars they are faulty, though we can accommodate ourselves by assorting sizes to suit. As a usual thing the bicuspid and molars are not large enough. They are generally too small and fail to have sufficient lingual or palatal surfaces and hence do not give the patient the lingual assistance that natural teeth do. Figures Nos. 14 and 15 show how the bicuspid should correspond in size to the molars and how the lingual surface might be lengthened.

In fact the crescent teeth and countersunk teeth, as illustrated in figures Nos. 16 and 17, are an improvement, and should be used in every instance in cases where there is great distance between the superior and inferior alveolar ridges.

The three great elements which enter into a satisfactory denture are: Comfort, usefulness and aesthesia, and to attain to this end requires patience and perseverance.

(To be continued.)



## DENTAL THERAPEUTICS.

By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.

## CHAPTER XI.

In dealing with discoloration of the teeth there are a great number of things to be taken into consideration. If it were possible to know the exact cause in each individual case it might be possible to treat each individual's discolored teeth in a way that discoloration would not take place except by faulty medication in trying to remove the pulp or treat the tooth after the pulp had undergone a degenerative process through the action of micro-organisms. Where the pulp has undergone a degenerative change in the presence of micro-organisms there are some very important questions to be taken into consideration; first, the kind of micro-organism that is acting upon the pulp; secondly, whether it is acting in the presence or absence of the oxygen of the air; third, from what source the organism has obtained its food media before the decomposition processes had been established.

Up to the present time all of the products and by-products that are formed in the decomposition of the proteid body are not known. Some authors are inclined to look upon this process very much in the same way that fermentation is looked upon. In the fermentation of certain substances we have what is called right and left handed fermentation, and out of the study of such a fermentation has developed the stereo-chemistry the subject from which an interesting scientific field has developed.

In the investigations of Naegeli, Neelsen and Hueppe they found that asparagin furnishes one of the most nutritive substances out of which bacteria can construct its own body substance, and at the same time form an organic pigment or a substance poisonous to the higher forms of animal life; this poison acts very much like a proteid body.

Asparagin in its chemical constituent is very much like ammonia or formaldehyde and still more like a proteid substance. Formaldehyde is looked upon as a strong protoplasmic poison when in a free state though very much diluted, still if ammonia is used for a source of nitrogen for bacterial growth formaldehyde may be formed by a simple rearrangement of the atoms in the molecule of

ammonia. When formaldehyde is formed in sufficient quantity to arrest the development of bacteria by attacking the amido group in the protoplasmia of the bacterial cell, all that is necessary for a source of food for bacteria is to add a small quantity of sodium sulphite ( $\text{Na}_2\text{SO}_3$ ), and then bacterial growth will continue as in the previous instance. All that is required is the chemically changing of the formaldehyde compound to an aldehyde. This chemical change is accomplished by a rearrangement of the atoms in the molecule. All these chemical changes are going on while bacteria is acting upon a proteid substance, or an organic compound that contains all its elements in a proteid molecule. When it is considered that such chemical processes are going on in the presence of an albuminous-like body, such as is known to exist in the tissues of living organic substance, one is not at all surprised that many times it is impossible to accomplish the death of bacteria with many of the solutions that are used as antiseptic agents and disinfectants; or when these agents are used as the destroyers of germs that are constantly present in the decomposition of pulps of teeth that there may be a chemical product formed which will cause the discoloration of tooth structure.

In the discussion of discoloration and the disinfecting of teeth we are constantly confronted with the question: How is the best means to get rid of bacteria and their products without forming a chemical substance which will permanently discolor teeth? All tissues in the body that undergo pathological change take upon themselves a change of color. There are certain cells in the body that contain within the cell wall a certain pigmentation which is not due, so far as we know, to a metal combined with some of the organic substance to form pigmentation. But we know that there are certain portions of the cell that takes up various substances and produces pigment or discoloration, and that this discoloration is not due to any of the inorganic metals that may be present in the cell itself. Might not this same thing be true in the discoloration of tooth substance?

It is a very well observed fact that if the pulp of the tooth be removed, the root canal be permanently sealed and the external cavity remain open that the discoloration of the tooth will be greater than it would if that portion was hermetically sealed. All of this leads to the hypothesis that any form of decomposition within the body of the tooth from external agents has a tendency to

bring about a greater discoloration of tooth substance than when there is no decomposition present. And many of these discolored teeth when bleached out to almost or quite their normal translucency will in the course of time change back to that opaque condition, which indicates that there is no longer a living pulp in the tooth. It has farther been observed that when a normal living pulp has been destroyed by pressure anaesthesia and removed under as nearly aseptic conditions as possible, and the tooth has been hermetically sealed, both in the pulp canal and the external opening, there is most always that opaque appearance of the tooth. And although every precaution has been taken to remove every particle of organic substance that is supposed to contain any of the iron compounds, there is still that tendency of the tooth to become discolored. This process may not be fully accomplished for three or four years after the pulp has been removed. If this is not due to some molecular rearrangement in the keratine of the tooth, what is it?

The question arises: What is tooth medication and why is it used? It is the local application of medicine for the purpose of destroying the pulp and for the getting rid of micro-organisms that cause the pathological changes in both the hard and soft tissue of teeth. For the destruction of the tooth pulp we use one kind of drug, while the getting rid of bacteria is a process that must be accomplished under somewhat different circumstances. The devitalization of the pulp can usually be accomplished much easier than that of destroying bacterial life. However, it must be borne in mind that both are brought about by the destruction of living protoplasmia and that arsenious acid, the agent so universally used for the purpose of devitalizing pulp tissue, will also cause the death of certain forms of bacteria. But its action on bacterial life seems to be less active than when it is applied to a tissue of differentiated cell organization. It has been found that one part of arsenious acid to thirty thousand parts of water will eventually arrest and kill the algae and the seeds of higher plants, while the lower forms of fungi grow in a tolerable strong solution of arsenic. A one per cent solution of arsenite potash has no effect on alcoholic fermentation, except that it may arrest it for a few days, but a little later it increases the fermentative process.

It is stated by good authorities that arsenious acid is only one-tenth as antiseptic as perchloride of mercury. While it will under

certain circumstances arrest bacterial growth its inhibitory power decreases as we go down in the scale of organic life. This points to the possibility of obtaining a biological antiseptic, for here we have an agent which causes death of the protoplasmia in the higher forms of cell life, and as the organization decreases to the simpler forms of life its effects are very much diminished. Now the question of obtaining an antiseptic and disinfectant that will destroy the low forms of vegetable life is a question that must be worked out on truly biological lines.

Up to the present time there has been no definite line drawn between the irritability of protoplasmia in the higher and lower forms of life, but there seems to be a vast difference when they are brought in direct contact with certain chemical agents. Of course, there is one important feature in regard to the reaction of protoplasma to certain chemical agents, and that is, the media in which this protoplasmic cell is surrounded by, as was above shown when formaldehyde, which is a great protoplasmic poison, if sodium sulphite be added to the solution it is at once converted into a food media for these low forms of vegetable life. This seems to be true of most all the agents that are used for the purpose of destroying the virulent forms of bacteria. Much light may be thrown upon this subject when physical chemistry is better known.

Since this last named subject has been studied from a scientific standpoint considerable light has been thrown upon the physiological activity and the changes that take place in cell life. Take for instance strychnine, which brings about its effects on the higher animal life by forming a chemical compound with the protoplasmia of the nerve cell, while other agents change protoplasmia through the changing of the physical properties of the fluids surrounding the protoplasmic cell; the first has a direct affinity for certain protoplasmic structure, while the other has no specific affinity for that substance but simply inhibits its growth and development by certain physical changes surrounding the body. This phase of the subject has been developed through the salt-action or certain of the alkalies or the so-called salt solutions, and to this phase of scientific research attention must be turned in order that a thorough understanding of the subject of drug action and especially the action of certain agents used as antiseptics and disinfectants be known.

In considering the heavy metals, we will include as belonging to

this group mercury, silver and antimony. There are a large number of chemical agents that come under this head of pharmacology, while antimony is analogous to arsenic, still most authors classify it as belonging to the so-called heavy metals. It is considered by most authorities that these metals have but little effect upon the living animal organism when introduced into the body in the form of a pure metal. It has been demonstrated that metallic mercury may be taken internally in large quantities without producing any of the characteristic symptoms of mercurial poisoning. In order that these metals may bring about the characteristic symptoms of active poisoning they must be in a form in which they will readily become disassociated into their respective ions. When any of the salts of the heavy metals are added to a proteid like the albumin of an egg, there is at once formed an albuminate of this particular metal. In such a case the albumin acts as an acid radical, forming a more or less stable compound of a metallic albuminate. In such combinations the metal that enters such a compound has a very large range of variation. However, there are some compounds of albuminated metal that seems to be governed by a definite chemical law. Almost any of the salts of these heavy metals can be removed by continuous washing. The majority of these combinations are insoluble in water. The albuminate of mercury is soluble in an excess of proteid substance or in a sodium chloride solution. The albuminate of iron is readily discolored when ammonium sulphide is brought in contact, owing to a chemical reaction taking place forming an iron sulphide. It would be much easier, however, to form a ferrous sulphide by using an inorganic salt of the metal with sulphur, for the reaction is not very active when the sulphide is brought in contact with the albuminate, because of the stability of the ferrous albuminate. When a solution of metallic salt comes in contact with the mucous membrane a metallic albuminate is formed, and an acid is set free. Of course it will be understood that the reaction taking place will depend very largely upon the nature of precipitate and the acid that is present. If a solution of metallic salts is brought in direct contact with the mucous membrane the acid that is set free may cause a corrosive action of the epithelial structure, and to an extent modify the action of the metal, or there may be formed a metallic albuminate which will also prevent the further action of the metallic salts. For instance a weak solution of the acetates of metal applied to the mucous surface will form

a thin film over the superficial portion of the tissue and prevent any further action of the metallic substance; however, if a strong solution is applied it would penetrate more deeply into the epithelial cells and cause a coagulative process setting free the acid which has a more destructive action to the deeper tissues. If a nitrate of these metals be applied to the mucous surface the astringent properties of the substance is less manifest and the irritating and corrosive action is much more evidenced. All of these conditions must be taken more seriously into account when the action of the metal is desired. The metallic salts of mercury has a more irritating and corrosive action, which is possibly due to two things; first, because the precipitate is not so continuous and because it is more soluble in an excess of albuminate.

When the corrosive action of any of these metals is desired it can better be accomplished with the chlorides or nitrates, for it has been observed that a combination of the metals with an organic acid acts better as an astringent and are far less corrosive and irritating. When the local action of these metals are desired there are a number of things that should be taken into consideration; first, a concentration of the solution, and, secondly, the conditions of the surface to which it is to be applied. When the astringent properties of the salts of the heavy metal is desired the one that is most commonly used is the acetate of lead, while the one that is considered the most corrosive and has the most irritating properties is the perchloride and nitrate of mercury. The chloride of zinc, copper and antimony are more or less irritating to the mucous membrane; they have some slight astringent properties. The sulphate of iron, copper and zinc have even more astringent properties and are less irritating than those just named. Weak solutions of nitrate of silver and lead have some astringent properties; they corrode the tissue rather deeply and sometimes produce pain and irritation to the structure adjacent.

It has been observed that certain insoluble compounds of mercury have been known to cause irritation and sometimes quite extensive corrosive action without producing any astringent conditions, while most all of the other metallic compounds have a more or less astringent action. However, at the present time no definite rule can be laid down as to what extent any of these metallic compounds may produce corrosive or astringent effects on the cells of the mucous membrane. However, it is pretty safe to say the

astrigent properties of these agents are universally considered to be very superficial. It may safely be said that the main chemical reaction that takes place when these metals or their salts are applied locally to the mucous membrane produce a metallic albuminate and liberate an acid. Thus it can be readily seen that when an albuminate of these metals are applied they have but very slight irritating effects which readily accounts for the efforts of the chemist to obtain an albuminate of these metals whereby their irritating properties may be entirely done away with and yet obtain the desired effect of the metallic action.

(To be continued.)





## PORCELAIN INLAYS.

By J. M. Thompson, D. D. S., Detroit, Mich.

## CHAPTER III.

The preparation of labial cavities is a very simple operation as far as the mere procedure of forming them is concerned. It is hardly necessary to mention to any one the fact that such cavities are most always sensitive and generally quite difficult to work upon. In a general way their form should be symmetrical, having curved outlines with walls slightly beveled toward the enamel borders. The beveling should be a very slight departure from a line drawn perpendicular from the floor of the cavity, the margins at all points being sharp enough to make a clearly defined line in the matrix, which is strictly essential to perfect work.

Having outlined in a general way the principles governing the preparation of cavities in all surfaces (excepting cutting edges and the articulating surfaces of molars) we have now to consider the forming of the matrix. The writer does not advocate porcelain inlays in positions where the force of mastication is greatest, as experience has shown very clearly that all things being equal a filling of some other kind will withstand the stress of wear and tear much better than porcelain. As applied to the cutting edges, however, it is practical and can be made very strong and beautiful. This will be described in a later paper.

The preparation of a matrix for contoured restorations in incisors and cuspids is undoubtedly the simplest task performed with platinum or gold. There are several reasons for this, the foremost being their accessibility. The removal of a portion of these teeth gives greater opportunities for the work of burnishing, and their wedge shape makes the removal of the completed matrix an easy matter. A piece of platinum a little wider than the cavity is long, and long enough to nearly cover both lingual and labial surfaces can be held by the fingers of one hand while the burnishing is being done with the other; thus preventing any rocking or springing of the metal. The overlapping ends may be trimmed away as the work of burnishing progresses and the matrix then held in place by strips of heavy rubber or fine linen tape. These materials are almost indispensable aids and have been mentioned in this connection by several writers.

Matrices for labial and buccal cavities are next in order and

require considerable skill. Like riding a bicycle they look easy, yet are really hard until one knows how; and holding the platinum in a way that will preclude springing is the most difficult part of the work connected with these cavities. This may be easily accomplished, however, by using a piece of platinum that may be conformed to the outlines of the cavity and be large enough to lap over the edges when burnished to place. Now lay this over the cavity and secure it with a loop of binding wire. This procedure will do the work of a third hand and can be depended upon to a greater extent than silk or linen. There are no set rules for this work, and the needs of each case must be met by the ingenuity of the operator.

In instances where wire or silk cannot be applied, gutta percha base plate may be used to force the platinum into place. This material is one of the greatest aids the dentist has in many lines, and in no way does it prove itself of more value than when used as a counter die. It is far superior to vulcanite rubber, as it does just what is wanted of it and no more. In large cavities an impression may be taken with it and used to form the matrix upon before attempting to burnish the latter into the cavity, which greatly facilitates the work. Warming it again and using it to force the platinum into every part of the cavity helps still more. After being employed in this way it may then be cut in two and each half used to hold its respective side in place while the other is being finished with a burnisher. Dr. C. H. Land advocates the use of pencil rubbers shaped in different ways and they are very valuable assistants in most any position.

We come now to the making of a matrix for proximal cavities in bicuspid and molars. It is right here that one ought to go way back and sit down (in his laboratory) until he can make a filling that will stand inspection before attempting a practical case. There are many wrinkles to be learned that do not appear entirely in the platinum. Dr. Reeves says in a recent paper entitled "Don'ts in Porcelain Inlays": "Don't think that watching a clinic gives you all the insight you need of the technique, and that you can go to your office and do the same thing, for you will find that you are up against it." The writer knows that the foregoing is true, and would add a grand amen. The work is not finished when the matrix is completed, as in these cavities reburnishing is generally necessary.

The first step is to properly cut the platinum for the cavity to be filled. In cases where decay has extended under the gum and it is

impossible to wrap a strip of metal cut perfectly straight about the tooth in a manner that will carry it above the cervical margin, it is necessary to cut it not unlike a Lodge band matrix. This simplifies matters and does away with much of the tendency of the metal to wrinkle or overlap, at the same time admitting of carrying it well up over the margins.

The next step is the holding of the metal in place with the fingers of one hand while with ball tipped pliers (carrying either wet cotton or spunk) it is coaxed, teased, or forced into the cavity. Care must be exercised in holding it, for if held too tightly there is danger of tearing the strip in two. The cotton and spunk make very good starters, but should be followed with warm gutta percha, and finally with burnishers. Trouble is sometimes experienced in making the overlapping portions stay where they are put, and this may be overcome by cutting little slits in them and laping the edges and tacking with a little pure gold. Where low fusing bodies are used and the matrix invested, it is not necessary to reburnish; but, in using high fusing materials there has yet to be made an investment that will stand the necessary heat.

Having described in part the forming of matrices for the purpose of keeping the most difficult points in mind, the order of describing the different cavities will be reversed and the building of molar restorations will be considered first. Owing to the shape of these teeth it is almost impossible to complete a matrix at one burnishing, and even if it were so completed, there is no certainty that it will not be changed by the shrinkage of the porcelain.

The different materials that are now upon the market (quoting from Dr. D. O. M. Le Cron's article in November Summary) shrink from  $21\frac{1}{2}$  to  $38\frac{1}{4}$  per cent. Consequently, it requires considerable skill to successfully build in the body in a manner that will overcome such a large amount of shrinkage.

After trying several methods the one giving the most gratifying results is as follows:

Having nearly completed the adaptation of the matrix as a whole, and fully finishing the portion for the foundation, put the porcelain in the center and build it out gradually to a point that will nearly reach the surface of the adjoining tooth. Return this to the cavity and observe the progress made, and keep adding until it really does touch the other tooth. Now insert a wedge in a way that will hold it securely in place and complete the burnishing. Remove this from the cavity and fill in with enamel body. Other methods such as the use of rods of high fusing porcelain to be so placed in the matrix that their unchanging shape will overcome the shrinkage of the lower fusing materials; to divide the partially dried foundation body with the spatula, or making a hole in its center are advocated and employed. This latter allows the porcelain to draw away from the center without drawing in the sides of the matrix. Many times it seems almost impossible to overcome the

shrinkage problem, even after the most careful attention to details. As a last resort an afternoon's labor may sometimes be saved by making a new matrix, placing in it the inlay that has failed to meet the requirements and filling the space between the porcelain and platinum with Brewster's XX body. The results from this final effort are usually quite gratifying and worth while. Space does not permit the giving of minute descriptions of the various ways and means of working, but as a final word of caution, I would add—"never try to rush porcelain, as haste makes waste, to a very marked degree."

Selecting colors for labial fillings is undoubtedly the most difficult part of the task of making these restorations real works of art. In no other location does a slight variation of shade show more plainly than in these cavities. It is generally advisable to study the case and determine what colors are needed before the work of preparing the cavity is begun. A faint heart is liable to be sorely vexed, as it is often necessary to make two or three attempts before success crowns our efforts, and as a guard against arousing the doubtful nature of our patients it is sometimes best to explain in the beginning that two or three fillings may have to be made.

To illustrate how easy it is to make a poor selection in colors, the writer wishes to cite one case in which the prevailing color seemed to call for a dark yellow and when completed did not match the tooth at all. It was started with yellow foundation and finished with a little lighter shade of the enamel body. Being a very dark tooth and a correspondingly dark inlay, it was not very noticeable, but having a desire to do better another matrix was made and the second inlay was started with brown foundation and finished with brown enamel body and the result was a decided success. There was the usual yellowish appearance to the dentine and as at that time the color was selected after the cavity was prepared, it was undoubtedly the light effect given by the newly prepared surface of the cavity which led to the selecting of the wrong color.

It is in these cavities that the cement often upsets our fondest hopes. This is principally in very shallow places, and it is in such cases that a knowledge of the use of oil colors can be put to a practical test. The time is not far distant when a so-called porcelain expert will not be considered up-to-date if he has not made use of these valuable preparations. An underlying layer of oil color will preclude any possibility of the cement showing through and at the same time reflect enough light through the enamel body to give the desired shade. In deep cavities where the different colored foundations are used, trouble from cement is a small consideration, as their density preserves the effect produced by the overlying layers of enamel. It is generally conceded that inlays look better after they have been in for some time and in no place does this hold good more than in labial cavities.

(To be continued.)

# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller, D. D. S.

No. 7.

Hypnotism.

Have you tried it?

Don't you believe in it?

Why, it is great! Wonderful!

Perhaps you let your patients do the hypnotizing?

You should not do that. Get wise in the matter.

Learn a lesson from Sunny Jim and wear the smile that won't come off.

(Except when they want to put off payments. That's where they hypnotize us—some of us.)

Yes, wear a perpetual smile and keep your left eye on the goal.

People love a cheerful dentist. Wear your sweetest when you are going to extract.

If there are two, three or more to extract just smile, and smile, and be a dentist still.

Personally I have had a good deal of success with hypnotism in dentistry.

A patient once said to me, as he left my chair, after a siege at filling:

"I don't understand, Doctor, how you have a friend left on earth. I don't, by g—ingerbread! Say, I'd rather have my head chopped off than have teeth filled any way. If I have to have them filled I'd rather have you fill them than anyone I know. I suppose it's the same feeling one has about the selection of a headsmen. D—— you, Doctor! You're a good fellow and I hate you worse than poison. Have a cigar. Well, I'll be with you again in the morning. Good-by."

Don't you see how he was under my hypnotic influence?

O, it is easy to hypnotize. No trouble at all.

If it is a beautiful young lady in your chair with a sweet rosebud mouth, don't say in the usual formal courtesies, "Open your

mouth, please." No, no, have some poetry and sentiment about you. Say (and don't forget the smile), "Won't you please let the beautiful gates ajar?"

Ten to one you score. It will bring the mouth open.

Then you talk about pearls, not teeth.

Instead of speaking of a gold plug, call it a poem in gold.

The hyp. goes along all O. K.—until you "strike a nerve." Then it is hyp-not, without the ism.

But don't mind that; just exclaim in surprise, "O, did *that* hurt you? Now, really."

I sometimes think they feel something like the Irishman who attended a wake, and while taking "a rubber," as he said, at the corpse, he laid his derby in a chair.

About this time Mrs. Malloy came in and accidentally sat on the hat.

When Pat came to leave he looked about for his hat. Picking up the crushed lid Mrs. Malloy said, "Is this yours? I think I must have sat on it."

Pat was peppery and replied, "You think—you *think* you sat? Mrs. Malloy, don't ye know *dom well* ye sat on it?"

In the tone of voice in which your patient looks at you you can hear almost in articulate language, "Did it hurt? Don't you know," etc.

Like everything else hypnotism don't work in every case. It don't work so well when you are boring a tooth as when you are not boring.

When you jab a live pulp it is all off. Wow!—unless you have used pressure anaesthesia with the hypnotism. They go well together.

It takes longer to hypnotize some persons than others. That must be understood. If you don't succeed the first thing, don't be discouraged. Keep the pressure anaesthesia near at hand for stubborn cases—or a bottle of chloroform.

There is nothing like perseverance, but you can't use the same hyp. on everyone and win. You must study character and be able to apply the hyp. that will fit. If it has been used by anyone else, see that it is sterilized.

In hypnotizing some people the rubber dam is a great adjunct. I have worked it with very **satisfactory results.**

Some people yield to the hypnotic influence when they are bucked and gagged.

Some people think dam if they don't say it.

Haven't you seen the grateful look in more than one woman's face when you say, "Shall I remove this dam thing?"—meaning simply the rubber dam.

On one occasion I remember in a vexed and unguarded moment I uttered the single word, "dam!" My patient was a lady teacher in a Sunday school and she looked at me with slight evidence of shock. Ere it had really took hold, however, I was the *cheerful* dentist again, and lifting the corner of the rubber dam I said, "I was speaking of this; not the d—— you were thinking."

I felt that hyp. had worked, for she broke into a smile, and said, "Well, it is just wonderful how well you can read thought."

Then I told her how a gentleman ran to get the ferry but missed it by about two jumps and he said something, when a lady behind him, who had likewise sprinted, said, "I thank you, sir."

Say, hyp. worked in this case beyond anything anticipated. There was the dam clamp, the dam holder, the dam weight, the dam forceps, the dam punch, etc., etc., and she discussed them freely and when she could not remember the names they were simply dam things.

There is nothing like getting your patient *en rapport*. That's hypnotism. Every time she used the dam I could see the final n in the twinkle in her eye.

Now, I want to say here "it is a damp, bad day" when you can't ring in a rubber dam joke—all genuine and spontaneous with you, though you have to wring the rubber hard for it some time. Ministers will take not only kindly to it, but often with a great deal of relish.

I had a preacher once who said our occupation would be the last he would choose.

I told him that it was a hard life. Few realized what a nerve-racking occupation it all was, but it had its compensations and chief among them was that dentists never went to the bad place—they got plenty here.

He answered with a real snort of incredulity, "Where, sir, do you get that assurance from? Not from the Bible, sir. It tells who will go to heaven and the occupation of dentist is not mentioned in the book."

He's hyp'd all the same, for he comes with proper regularity and he enjoys a play upon words about the rubber and things.

Then there's the small boy that hasn't any use for the dentist at all, and so they will bite your fingers. I hypnotize such kids by holding the jaw in such a way that when they begin to bite I crook my finger and dig into some tender part and after a few attempts they become completely hypnotized and docile. They may whimper some, but on the whole the hyp. has worked.

Like Christian Science, you can give absent treatment with great success, in some cases. I had occasion to extract a tooth once for a big husky prize fighter. He was the biggest coward that ever sat in my chair. After several dopes of whisky, which he went out and got before he got to the sticking point, he at length sat down, but with an oath. "Now if you hurt me there'll be something doing here beside pulling teeth."

Of course, it hurt, and as he was expectorating, he said again, with an oath, "Didn't I tell you? Say, you've got an upper cut coming to you when I get out of this chair that will bump your head agin the ceiling. Sure thing."

This was a case for absent treatment, and I so treated it—and threw in the dollar.

Good-by. I'll see you next month.





## PROCEEDINGS OF SOCIETIES

### FOOD—ITS INFLUENCE ON ANIMAL PHYSIOLOGY.\*

BY B. J. CIGRAND, M. S., D. D. S., CHICAGO.

Less than a century ago dental practitioners were interested primarily in dental eliminations; to-day dental preservation has taken the place of elimination or substitution.

That our physical as well as mental condition has an influence on our teeth, none at this period of civilization can doubt, and that the condition of the teeth in turn have an influence on the physical and mental is also an established fact, and in this chain of dependence we must not forget that the foods upon which we live exert a most decided influence over the entire animal economy. We are gradually beginning to comprehend that the diet has a most pronounced effect on the teeth, and the animal physiology, than has been surmised.

In the animal kingdom the forces of destruction are constantly at work, and the forces of renovation and repair are equally active, but they do not remain, perfectly matched, for at times the energy of the mind or body may be so great as to overtax the residual forces and the physical being becomes exhausted, and if this same activity is continued the body soon suffers, indicated by loss of weight and lack of mental vigor; and again we may have the forces of repair, the ruling agent and the mind is clear, the body strong and the entire nervous system alert and vitalized. This constant war of forces is largely supplied by the food we eat and the mental energy supplied. A sluggish person, slow of movement and of thought, as well, does not destroy the cellular life as rapidly as one who is active and industrious—but the latter has the advantage of living under the influence of new and quickened vitality, since his energy wastes the elements and eliminates this waste product while the indolent harbors this poisonous matter, because of the lack of molecular and fibrous exercise.

\*Part one of the conjoint paper. Part two "Food—Its Influence on Cell Physiology" read by Dr. G. W. Cook. Papers read at Northern Indiana Dental Society, held at Wabash, Indiana, September. 1903.

In our early life the powers of restoration exceed those of destruction and we grow stronger, larger and the entire system develops, while in old age the forces of destruction are in control and nearly all the organs and systems suffer, in that they grow smaller, less active, and the vitalization is diminished.

The muscular tissues are readily affected by the character of our life and quality and quantity of our food, and seem a fair meter of our strength and health.

While the osseous tissue is more fixed and does not undergo such rapid changes while the dentine and enamel do not share in this arrangement of waste and repair—once they are fully erupted and developed and it is in this latter truth, that we, as dentists, are especially interested.

Food exerts a physiological influence on the dental organs while they are still in the sheets of membrane and supplied with vascularity, but after they are erupted the foods have but a passive effect on their composition, in fact subsequent to eruption, foods have a pathological and mechanical influence on the dental organs. Now since the teeth are least of all organs restored, it behooves all to learn how best to build them so they may resist the pathological and mechanical influence of our diet.

It may be stated as a truth that in the animal kingdom there can be no restoration where there is no circulation, hence the enamel after the tooth has erupted is robbed of circulatory contact and from that period cannot share in the function of constructive metamorphoses. There being no circulatory apparatus with its substance, there can be only destructive metamorphosis.

The dentine, however, is in immediate touch with the circulatory system, and is supplied to a limited extent with vascularity, yet there is no capillary network within its texture and it, like the enamel suffers waste and decay without repair, or reinforcement from the restorative agency of the blood. But nature provides that in the event the enamel, or armor of the tooth, be worn down, broken off or destroyed, the irritation, to the dental tubuli stimulates the circulatory system to deposit granulation, akin to dentine on the walls of the pulp chamber and offers protection to the pulp from external abuse.

If the irritation is kept up, the granulations continue, and as the deposit is added the pulp recedes, until in extreme cases, the

pulp diminishes in size and practically disappears. This deposit of secondary dentine is wonderful and must interest us all, since, if we were able to induce nature to deposit secondary dentine, we certainly would be accomplishing great good. Hence, this deposit of calcic-phosphate is linked with our foods, since it is complete with the granulation, but the dentine is never rebuilt at the point of destruction or outer ends, the new foundation being at the inner or end adjacent to the circulation.

Strange as it may seem, I have observed that the motive temperament is the one most changed after depending upon artificial dentures. I have arrived at this conclusion after a most careful examination of the facts of the case. The deductions I have made are based on answers furnished me by people wearing full sets of artificial teeth. I have not projected a theory, and then gone forth to find material to prove it true, but have for years collected all possible notes, observed closely, and compared freely before I permitted myself to form a conclusion. That change in diet of necessity changes disposition, if not even the temperament, I am thoroughly satisfied. Example of this we have at our command from comparative anatomy. The dog tribe desire meat as a food. If this is denied them and they are fed on bread and cereal food stuffs, the dog propensities are shortly changed, and if the food first given him is changed for a period of years, his entire animal disposition has been re-created. If you again substitute for the cereal foods, the meat diet, he will in several months return to his original inclination, and instead of being merely watchful and alert, becomes ugly, disagreeable, and even savage. And what is true of the dog is true of the feline tribe and other animal classes. To arrive at some definite knowledge as to what change takes place in people of the motive temperament, who, like the dog, are inclined to meat eating, I have studiously inquired into this feature of things.

We are all pleased with the present disposition of the elite who have recently demonstrated their deep concern of better methods of preparing foods; it is delightful news to learn that society has inaugurated a fashion which will yield good results and lead this generation nearer to the true purpose of civilization which stands for better moral and physical living. Our nation should take deeper interest in the question of foods and assist in establishing laws which truly protect the masses against reckless manufacturers who

adulterate and corrupt nearly every form of food merchandise. I spent some little time investigating the reports of the Committee on Pure Foods of which ex-Senator W. E. Mason was a member and its proceedings disclose a lawless and criminal disposition on the part of manufacturers and shippers which astound the citizens and shock the public conscience. But the report is not sent broadcast, nor has the government made an earnest attempt to provide against this form of corruption. The government at Washington can do much toward eliminating disease and disorder in the human family, and in no avenue can our nation set a better example than by compelling the sale of pure and unadulterated foods.

The government seems to incline to the principal that: "It is interfering with the true spirit of individual liberty to prescribe the character or kind of food and drink." But the government need not give license or tolerate the sale of this corrupted and polluted food. It is a part of a nation's duty to see to it that her citizens are strong, healthy and vigorous. Her defense depends on the physical perfection of her soldiery, and can she expect stanch and enduring cadets or volunteers whose physical being has been nursed and developed by unwholesome and impure substances?

All government at present are keenly alive to the interests of the commercial and material things, hence this craze for oceanic speed and military art. The United States annually spends millions of dollars in the department of agriculture in the hope of arresting the disease of swine, cattle, and sheep. The government provides the scientists with the best of lenses to discover and decipher the bacteria and agents of destruction to the animal and vegetable kingdom, but the human family is left to the individual enterprise and disease, hovers at every door step in the form of consumption, dyspepsia, and pyorrhœa, allowing a death rate of a most alarming figure. The government could well afford to publish fewer books on cattle and swine bugology and devote a portion of this enormous sum to the redemption of the citizen health.

If the government would take up the initial issue for pure food, let her interest be manifested in the death rate of infants. It has developed that the children and babes which are reared in cities, and a major percentage at present hail from the metropolitan centers, that their foods are without exception impure and adulterated. It is proven by the medical examining boards, and others interested, that

the milk and cream, as well as the variety of condensed foods, have scarcely nourishments, and are compounds absolutely unfit and incompatible with the infant organs of digestion. Recently a physician in New York City called attention to a brand of condensed milk, and upon careful examination it was found to be burned flour. How can we expect the infant being to prosper and develop under such prevailing circumstances. If the several states do not enact laws which will prevent this form of crime, the nation at large had better take the matter in hand.

We may well keep in mind the low birth rate of France—of what avail is a high birth rate with an encroaching and increasing death rate. The present high death rate of infants is due in no small degree to the influence of poor foods, and hence we are interested since it concerns the physical economy.

The relation of this to the dental development is clear to all present and scarcely demands further explanation, but pardon the remarks. If the infant is fed poor food its vitality will naturally be diminished, and when the great epoch of dentition arrives the faint and impoverished little soul has not the power of resistance, and the intense fever of teething soon burns up all the forces and await death from convulsion or other forms of nervous as well as circulatory disorders, all resulting from inattention to the foods, the mouth and alimentary tract.

Aside from this death figure, directly responsible from adulterated substances what is being done by the government to encourage scientists to prosecute the study of diseases of infants? Our population is on the increase, but it must not be forgotten that the figures of immigration are added and this admits of a fair showing.

President Roosevelt has called attention to the childless marriages—thanks for his drastic criticism—but he might have gone into this matter further and added "Save the children that are born."

In the large cities during July, August and September, cholera is akin to epidemic because of the great use of poor milk and artificially ripened fruits, which in a semi-decomposed condition are acid in reaction and hence this decomposed substance lingering in the oral cavity induces decay and augments the acid condition of the mouth already present from lower forms of life. It may be a mistaken idea, but I harbor the thought that dental decay is less prevalent in the country because of two causes, primal among which is that

fruit is not artificially ripened and that in the country time is taken for meals.

The general public in the cities have been inoculated by the virus known as haste, hustle and hurry. Their meals are eaten in five minutes, and only substances requiring little chewing are chosen from the bill of fare, and we have learned long since that the teeth need organic exercise. Nature despises disuse. She has a standing resolution which reads: "The idle and unused shall be cast off," and this applies to the teeth which allow me to say, are no exception to this edict. If you were to have your right hand bound close to your chest and it were to remain so for a period of one year you would not be able to control it upon emancipation. Use and development have come to mean the same, and nature furnishes an example in the sightless fish at the Mammoth Cave, Kentucky. Nature says, why have these eyes when they are not used? Atrophy in nature, as in political life, means waste and death.

Select foods which exercise the teeth. This stimulates the circulation in the peridental membrane and induces a quickened circulation in the tissues of the gingiva and possibly wards against pyorrhea and other forms of diseases of waste.

"The prosperity of a nation depends upon the health and morals of its citizens; and the health and morals of a people depend mainly upon the food they eat."—Ellen H. Richards.

Hippocrates gave voice to a similar statement more than a thousand years ago.

That the character of our foods has much to do with our thoughts and daily career there is little grounds for doubt. Alexander Dumas, the great observer and French sage, when treating of the poor and lowly of Paris, said: "The body and mind cannot be purer than the foods on which they depend." Now the word body in this sentence means to include the teeth, as well. For we cannot hope to preserve our good teeth by depending on impure and improper prepared food. This may seem a radical statement, but you will shortly agree since I hope to explain. If a person possessing excellent tooth structure is subjected to eating decaying and unripe fruits or faulty meats and chemically canned substances, it will not be long ere they will leave their impress on either the oral cavity and stomach, the latter forcing its acid eruptions into the oral cavity and bathing the teeth with a slimy and acid coat, which has a most destructive influence on the dental structure.

Though this acidity of the mouth can be induced by eating supposed good and unwholesome food stuffs, and a dyspeptic disposition may be developed because of too free use of pastries and other substances uncongenial to the stomach. Hasty eating brings with it deranged alimentary and this always means an acid both for the teeth and this means eventual destruction. If the American people are suffering from a general disease it is indigestion superinduced by insufficient mastication of foods. Hasty eating and modern cooking has eliminated more good teeth than accident or old age. While visiting England I was impressed with the good sense of these foreign people in that they observe the rules of governing appetite better than we who produce our love for the pleasure of life. It is quite perplexing to the American to be obliged to spend so much time at the prandial board, but the English custom of "loitering at the meal" is indeed an expression of national wisdom. Washington Irving, in his sketch book, clearly portrays the English love for a "good, substantial dinner," and throughout the continent as well the folk seem to take the full hour for dinner. The old saying "after dinner sleep awhile and after supper walk a mile" has grown obsolete and belongs to an age when people worked to live while now we live to work.

Again, we overlook the necessity of jaw movement in the process of digestion. Taking of foods, which are prepared so-called, require little mastication, cannot guard against dyspepsia and kindred stomach disorders. The food must be left in the mouth sufficiently long to be saturated with saliva and to assure its liberal flow, the jaw must be set in motion. Oat meal, and the various breakfast foods, do not require this, and the sucking or mere process of deglutition does not bring forth the saliva, and hence the proper action of the saliva is omitted and this will have its ill effects on the effect and force of the food.

While in France I was introduced to a most peculiar business custom, and it demonstrated a clear knowledge of human idiosyncrasies. A French salesman upon entering a large establishment to sell the proprietor a bill of goods began his curriculum by asking the proprietor the question, "How is your digestion?" and upon receiving the reply that it was splendid, unpacked his valise. I was informed by the resident American who accompanied me that had the answer been to the contrary the agent would have gone, asking to have the

pleasure of calling again. Agents in the United States would call this the height of hospitality, though the French declare that it is the height of common sense. They have learned the influence of indigestion on the mind and arrange to act congenial to the laws of nature.

The morbid influence due to deranged digestion has attracted attention on this side of the Atlantic in the form of the recent book by Arthur MacDonald, specialist in the bureau of education of Washington. In this excellent volume entitled *Abnormal Man*, he depicts the criminal side of our population, and it is instructive to read of the food and diet having largely to do with crime. He says next to company, diet and poverty exert the greatest influence in the criminal tendency, and deranged digestion comes in for considerable notice.

Fifty years ago such a statement would have been treated with derision. This emphasizes the necessity of greater care for the dental organs and augments the importance of the science of dentistry. It has been said that ignorance is the cause of crime. Tarde and Proal, both eminent French criminologists, say that education does not lessen crime and bring the prison statistics of the world to prove the statement. They both declare that diet and ill health are responsible for the great increase in crime.

This certainly interests dentists and physicians since it emphasizes the importance of their professions. I have made inquiry about this matter as it relates to the United States, and am surprised to find that while educational possibilities have increased considerably the crime has not been reduced, but increased. According to the tenth census of the United States the convicts in prison numbered 709 to the million population, while in the eleventh census the ratio was 722, or an increase of 13 per cent. The education of these prisoners was not neglected, since 88 per cent were well educated. These figures would tend to show the French declaration deserving of meditation. Diet has a direct influence on the dental organs when it is of an acid character, or when of sugary substance it supplies nourishment to the bacteria of the mouth and hence induces dental caries, because it augments the bacterial colony whose waste produce dissolves the lime salts of the tooth.

The dental profession by right should be the guardians of the oral cavity, and in this capacity be consulted regarding the character



of foods best intended to preserve the health and strength of the dental organs. If we are intrusted with the preservation and restoration of the human face divine it is imperative that we direct the choice of food which affect the teeth, either physiologically, chemically or mechanically.

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## CELL PHYSIOLOGY AS APPLIED TO THE SIMPLER FORMS OF LIFE.

By Geo. W. Cook, B. S., D. D. S., Chicago, Ill.\*

It is becoming a more and more recognized fact that all biological phenomena must as the last analysis be settled through the investigations on the physiological activities of the cell. When it is remembered that it is only a little more than a half a century since Schleiden and Schwann revealed the fact that all organic substance possessed of a physiological activity was made up of minute bodies or structural units known as cells.

In the higher organization of life, both in the animal and vegetable kingdom, there are a great number of these minute cells combined to make up the whole organization. It was at first thought that the body was composed of a homogeneous mass, but the microscope has revealed the fact that it is composed of innumerable minute bodies that have their special organization within themselves. They are wonderfully diversified in their morphological structure, as well as their physiological activities. The muscle cells, the bone and brain cells, are formed so as to carry out certain functional activities, each one having its own special work to perform, but still there must be that continuity of physiological activity in order that each structure can perform its individual function.

Since it is well understood that the function of physiology is to explain all vital phenomena and their relations to each other, but when it is considered that this study has only been very largely confined to the chemical and mechanical activities of the higher vertebræ, it can be seen at once that there is a vast field of physiological science that remains absolutely unrecognized in the biological world.

Cellular morphology is the forerunner of physiological research as applied to the living cell, and upon these two factors rest the

explanation of all vital phenomena, both in health and disease. It was upon the study of cellular morphology that Virchow established his well known cellular pathology, thus demonstrating the fact that all the various functions of the body, both physiologically and pathologically, are but outward manifestations of cell activity. It was through the study of cell structure that Kolliker and Remike made the scientific world familiar with the embryological developments of the multicellular forms of life.

While the microscope reveals many facts relative to the cell with regards to its morphological arrangement, still the chemistry of living substance is a vast field yet to be explored before a full explanation of the vital manifestations of life are explained.

It is a well known fact that the physical world is made up of sixty-eight elements, still there are only twelve that are constantly present in living substance. These twelve elements enter into the organic bodies through three chief chemical bodies, and through their chemical transformation they form that vital phenomena known as life. These three substances that enter into living protoplasmia are known as proteids, carbohydrates and fats. The first named substance (proteids) quantitatively constitutes the chief constituents of cell life. The chemical elements that enter into proteid is carbon, hydrogen, sulphur, nitrogen and oxygen. The presence of nitrogen in proteids is one of the distinguishing features between proteids, carbohydrates and fats.

While the chemical composition of proteids is not well understood still there has been sufficient investigation on this phase of the subject to demonstrate that it is an extremely complexed molecular structure, although it contains only the five elements still the atomic grouping reaches sometimes into the thousands. It has been farther demonstrated that this chemical substance is very essential to all living protoplasmia.

It would be quite out of place to discuss this important substance in all of its varied phases with reference to living substance, but it will be understood that the five elements herein mentioned in proteid substance must be carried into the cells of both the multicellular and unicellular forms of life by way of the proteid molecule.

The next chemical substance that is so closely allied to the nutritive function of living substance is carbohydrate. This latter substance chemically contains but three elements, carbon, hydrogen and

oxygen. The carbon atoms that are found in the molecule of carbohydrate is always six or a multiple of six. It will be observed that carbohydrates contain no nitrogen, likewise the fats are a non-nitrogenous substance and chemically is not always essential to the chemistry of living protoplasmia.

Since we recognize that there are twelve organic elements present in living substance these elements must come to the organism in some form as food, and the chemical structure of food and the method by which it is introduced into living substance is as varied as the forms of organic life. A general food for all organisms is not possible. Green plants are able to construct their organic substance out of inorganic material. For instance, carbonic acid and various solutions is sufficient for plants to build up their chemical complex structure, while on the other hand, animals require organic food and without exceptions they must have complexed organic compounds such as proteids, carbohydrates, and fats out of which to build their body substance.

The fungi, in a certain sense, stands between these two well defined kingdoms for they are able to obtain the nitrogen necessary for their organic substance out of inorganic salts, although they must have an organic chemical structure out of which to obtain their carbon. However, there is an exception to this rule in as much as there is a form of bacteria that can obtain their nitrogen and carbon from ammonium carbonate, thus in this respect they are like green plants, able to obtain their food stuff from inorganic sources.

The minimum and maximum quantity of food necessary for living substance is a question that has received but little investigation, and that only in the higher forms of life.

With regard to the quantity necessary for maintaining of the metrological equilibrium of the human individual is of the highest importance. Voit has shown that an adult man performing active work and obtaining 180 grs. of proteids, 56 grs. of fats and 500 grs. of carbohydrates, should be in perfect metrological equilibrium, provided the individual is excreting the same quantity of substance as they are taking in with food stuffs; especially should that be true with regard to nitrogen and carbon; these two elements should be determined separately, for it is a well known fact that when the body is in perfect carbon equilibrium it does not necessarily mean that it is in perfect nitrogen equilibrium. Therefore, the sources from

which these chemical elements come vary in so many respects that it is extremely difficult to know the exact reason why they are not always in harmonious relation with each other.

It was for a long time believed that there were sharp and well defined lines between the metabolism as it existed in both the animal and vegetable kingdom, but since the recognition and investigations on that low form of life known as bacteria, it has brought considerable confusion into the science of physiology. For instance, many of these live and are able to obtain their nutrition from inorganic sources, while others must be in the presence of organic substance where they can break this compound up and obtain their nourishment from strictly organic sources. There are, however, some low forms of life that belong strictly to the animal kingdom that must have a special source from which to obtain their organic nutrition, for instance, the fur-moth that lives exclusively upon the hair of furs that contain a special substance, almost a purely chemical substance that is absolutely necessary for them as food stuff. The chemical substance that they extract from the hair is known as keratin and is very closely allied in its chemical constituent to that of proteids. So various animals must obtain their food from special organic sources.

It is, however, a pretty well established fact that there is no animal thus far known that can live strictly on a carbohydrate or fat diet, not even when the two substances are combined. So it will be seen that proteids is a chemical compound that is always essential in the maintenance of the life force in the animal kingdom. What is absolutely essential for the existence of one organism might possibly endanger the life in another.

There is an important factor that must not be lost sight of in the metabolic changes that take place in the animal economy and that is the decomposition processes. The minimum amount of food that is necessary for the equilibrium of body nutrition disturbs the metabolic equilibrium far greater than an excess of food would produce. Consequently, in order to keep the body in perfect metabolic equilibrium it must be able to obtain these three chemical compounds, namely, proteids, carbohydrates and fats in proper relation to each other. When these substances are taken into the animal organism in their proper chemical state they act as a cell stimulus and increase the cell activity of those parts that they come in direct contact with, to the extent that the cells will excrete a substance that

has an enzymotic action upon this properly prepared food stuff, and they pass into the cell substance as free and uncombined elements and there are reconstructed into protoplasmia, which is capable of manifesting itself with all the phenomena of life. The process of building up living substance is a synthetic process but differs from all other phenomena of like character in that it contains the possibilities of irritability, and which manifests itself as a vital force which is inherent in all living protoplasmia.

If time and space would permit the discussion of the mechanics of cell metabolism would be found to be a very complexed mechanical process, in which there takes place the highest chemical reaction possessed of a wonderful physical process, all of which needs farther study in order that a clear explanation may be had regarding certain vital manifestations that are at the present time practically unknown.

As we approach the higher forms of life we see that wonderful differentiation of cell activity and how interdependent one cell is upon the other, and morphologically as well as physiologically they have a certain function to perform that belongs solely to that individual cell; but all are given expression to the interaction of two factors that are manifesting themselves in their external and internal vital process. Therefore, anything that may arise that would influence either of these factors would necessarily change the vital manifestations that exist in the cells or tissues of the body, and, therefore, the change of environments is consequently influencing the internal relations of cell activity in the tissues of the body.

Therefore, we recognize that metabolism is the source of the vital manifestations of the body and unless these twelve elements can enter the body in the proper chemical constructed molecule and is broken up and reconstructed in the proper chemical formula of the cell. For instance, some of these elements may be built up in the cell wall, nucleus, or in the cytoplasmia of the cell, but it must be understood that these elements do not enter the cell as a chemical compound but are disassociated and enter into the protoplasmia as ions. Therefore, in the process of building up the enamel and dentine of a tooth these inorganic salts are not carried there as sodium chloride or calcium carbonate, but are carried there as separate elements and deposited as a chemical formed substance. This synthetic process is a comparatively simple one, consequently the more

firmly are the atoms bound together than they are in the complicated synthetic product such as the proteid molecule.

It is a well known physical law that there is as much energy stored up in a mechanically combined substance as it required to construct it, consequently, if we are to have strong and robust individuals with teeth containing more potential energy than the chemical substance that they are constantly brought in constant contact with. It will be necessary to see that the cells out of which the individual is constructed as the results of inheritance and its adaptations of the external conditions of life is of a quality capable of building up this synthetic compound into the highest chemical and physical structure, with sufficient potential energy stored up in the cells and tissues of the body that it will be capable of resisting all ordinary external physical forces that it may come in contact with.

It has been said by an eminent author "In no case can anything appear in the form of disease which was not previously present in the body as a predisposition." The external agents such as bacteria and other such forms of disease producing organisms are only capable of making this predisposition apparent. He farther says, that we can either heighten this predisposition or remove it altogether; and herein lies the science in dentistry of to-day. When it is understood that predisposition depends upon the inherited vital manifestation of the body and its adaptations to its external environments, and that external environment means the food and drink that is taken into the body, would it not seem possible that eventually immunity might be established to the disease known as dental caries and various other manifestations of the morbid processes of the oral cavity?

If all the biological phenomena are taken into consideration it is at once observed that an inherited predisposition to a certain form of disease like dental caries or pyorrhea alveolaris and the external environments are such as to interfere with the metabolic equilibrium of the body, and especially if this environing condition may be in the early part of the life of the individual before the immunizing powers of the body have reached anything like their higher development that usually appears in the individual after they have reached the age of maturity.

Since we recognize that metabolism has the wonderful influence on the building up of the body substance, this influence of nutrition

can be better demonstrated on the low forms of life such as bacteria. For instance, we know that the so-called pathogenic germ does not always have to live as parasites for they can be cultivated artificially and in some instances they may lose their pathogenic power, while on the other hand they may be able to produce certain fermentative processes. Take for instance the germ of cholera, when grown on a potato it produces a brown pigment, but when grown in a culture media containing sugar it produces acid fermentation. On the potato it produces no acid, while in the solution containing the sugar it produces no pigment, but an acid fermentation instead.

One of the most interesting biological problems connected with the nutritive function of bacteria and how they are influenced by their external environments is that of the anaerobic. Certain forms of these organisms will not grow in the presence of the free oxygen of the air, but must be surrounded with an organic compound and construct out of it their own body substance. It is possible, however, in many instances to grow these bacteria in the presence of the free oxygen of the air until they pretty comfortably adapt themselves to their external environment. This physiological phenomenon of bacteria is a very interesting and far-reaching subject, both with reference to disease and fermentation.

While we recognize that all diseases that are produced by specific micro-organism is due to two factors predisposition and the presence of a pathogenic germ capable of producing this specific morbid process much depends upon the nutrition and environments of the micro-organism itself. Suffice it to say that one of the essentials in taking up the resisting powers of the body substance depends principally upon how these twelve chemical elements are stored up in the cells and tissues of the body and under what influence this metabolic process takes place. It must also depend upon the environments and nutritive activity of this specific micro-organism.

Since we recognize in all forms of life the importance of surrounding influences coupled with the best possible nutritive substance to get the highest developments in both animal and vegetable kingdom. What is true of the highest forms of life is also true of the lower forms of living substance, and our interpretation of disease and the etiological factors that enter into it must be based on broad biological ground. The remedy of its elevation rests with the public, state and nation at large, for without their assistance there will be a

continual struggle for existence, associated with pain and a great loss of life, both in infancy and adult age, but the foundation rests with the proper nutrition of infancy and childhood.

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### DISCUSSION.

The following discussion on the papers of Drs. Cook and Cigrand was not made by Dr. Hunt at the meeting because of a lack of time but this is what he says he would have said if he had had a chance to say it.

Dr. George Edwin Hunt, Indianapolis: I am convinced Cook and Cigrand wanted me to discuss these papers because they thought I had no knowledge of the subject. I read the papers on the train coming here this morning and on my arrival took Dr. Cook to one side and asked him what his paper was about. He confessed he did not know, and I told him he was not any ahead of me. It pained me somewhat this evening to see the confidence evidently put in those slides shown by him. In Chicago it is well known that those slides were made from photographs of Chinese laundry bills and have nothing to do with bacteria.

There is one point in Cook's paper I desire to emphasize.

Matter is composed of two grand divisions, organic and inorganic. Organic matter is divided into two kingdoms, animal and vegetable. The highest forms of each kingdom have distinct rules governing their food supply but in the lowest forms of each, these rules are not adhered to strictly. Organic matter may be symbolized by a letter V, in which the summits typify the highest development in the animal and vegetable kingdoms respectively, and the point of union the lowest forms.

Vegetation exists on unorganized or inorganic matter. Some of this is obtained from the earth through roots, and the remainder from the air. In both kingdoms the individual cell has the power of selection from the food presented to it and of chemical conversion by which the food is converted into substances suitable for building up into the tissue of the cell.

In the higher forms of vegetable life, the chlorophyll, a green coloring matter, is the agent by which the waste animal products are decomposed and converted into chemical combinations suitable for nourishing the cells, but as the bacteria, a low form of vegetable life, have no chlorophyll, they are unable to procure their carbon from



carbon dioxide, but must have organized matter from which to obtain it, thus violating the rule applying to the higher forms of vegetation, namely, that they obtain their nutriment solely from the inorganic world.

The animal world lives on matter once or twice organized. The graminivora subsist on matter once organized, vegetation; the carnivora on matter twice organized, flesh; and the omnivora on matter either once or twice organized. The result of this diet is evidenced by the stools of the genus. The graminivora, subsisting on matter but once organized, have a large residue to discharge after the digestive apparatus has selected the portions suitable for nourishment, while the carnivora, ingesting food twice organized, have hard, small stools, owing to the small amount of rejected matter.

No matter what its source, food must be brought to the animal cell in the form of proteids, carbohydrates and fats. These combinations are formed by the digestive apparatus, carried to the cells through the circulatory system and then converted by chemical selection to the form suitable for the nourishment of the cell, the residue being taken up by the lymphatic system and used elsewhere.

The point I want to emphasize is that inorganic matter cannot be so converted to the uses of the cell. It is never built up in the cell when it enters the body unorganized. Sodium chloride when taken into the body, passes through it always as sodium chloride and is excreted as sodium chloride. This does not mean that inorganic matter is not essential to the life of the individual. Inorganic matter is absolutely necessary to the cell life, but it is not built up in cell tissue, always exists as it enters the body and is excreted in the form it has had since its entrance. Witness water. All inorganic matter in the cell substance of animal tissue came to the cell in organized form and was there chemically separated by the metabolism of the cell, still retaining its organized form. The old theory that lime water taken by the pregnant female would improve the character of the teeth or bones of the child is as fallacious, as I once before had the pleasure to remark, as to think the same result could be obtained by giving it to the father before coition.

Dr. Cook's paper is a scholarly one. His contention that a metabolic equilibrium, if established, would equalize waste and repair is undoubtedly true. I think the statement would receive more serious attention coming from one that measures less around the waist and the wild range of fancy called up by an abstinence from all eating

except that necessary to replace the proteids, carbohydrates and fats eliminated by the cells in performing their functions, is enticing, but this is a purely scientific discussion and I feel that I must refrain.

As Dr. Cigrand states, the influence of food upon the tooth structure, after completion of the tooth, is nil; if we except its mechanical and chemical influence, both extraneous. He is also correct in laying stress upon the diet of pregnant women although heredity, previous life and the vitality of both parents will affect the structure of the teeth of the infant far more than the diet of the mother.

Dr. Cigrand says, "man's disposition is as much evidenced by his choice of food as by the character of his work." That man's disposition is frequently evidenced by the character of his work is true. That his disposition is evidenced by his choice of food is not a new contention, but is one to be taken largely "in a Pickwickian sense." Man's work is more apt to be evidenced by his choice of food than his disposition. I spent four years of my earlier life in railroad engineering field work. Probably three years of that time I slept on the ground, sometimes with a tent over me, but more often with nothing but an occasional waving branch between me and the studded vault of the sky. During that time boiled bacon, boiled beans, camp bread and occasional messes of green stuff, or "hog and hominy" were eaten with the greatest relish. From that life I went to the sedentary one of the student and practitioner. My food desires and needs absolutely changed, and yet my sunny disposition remained the same.

In Indianapolis we have Pasteurized milk for infants at practically the same price as un-Pasteurized, and therefore do not have the large infant mortality rate that Dr. Cigrand deplotes in Chicago. Many, if not most of the large cities in the country have Pasteurized milk, and I am astonished that Chicago is so neglectful of its duty. However, my belief is that the fault here lies more in the mothers, than in the infant foods. When a baby is born into the world it is incapable of digesting highly organized food. As its alimentary tract grows older it becomes capable of digesting more complex foods. Nature provides for these changes in the infant's digestive tract by changing the product of the mother's mammary glands from very simple to more complex forms, as the child is able to digest them. Artificial infant foods do not follow these changes. Give us stronger, more robust mothers, able and willing to suckle their

young, and infant mortality from digestive disorders will be lessened.

In reply to Dr. Cigrand's appeal for governmental supervision and the purity of food, it may be stated that the government is now conducting most extensive experiments in that direction.

Whether crime is a matter of indigestion is also debatable. I will concede a desire on my part to kill a dyspeptic when he evinces a desire to tell me his troubles, but in that case the criminal desire, while incited by indigestion, is produced in the fellow without the dyspepsia. Crime is more often the result of the first law of nature, self-preservation, than of indigestion. A starving man will steal, but his theft is prompted by a desire to live not by digestive derangements. The higher classes of criminals do not suffer from a lack of food nor from the quality of it. And here again, fancy tends to lead me astray. For instance, if the quality of food incites crime, why may not certain foods incite certain crimes? What particular crime will be incited by cold apple pie with a soggy cover? Profanity? But profanity is not a crime; it's an art. Again, if a Welsh rabbit equals grand larceny, and dill pickles with liverwurst equal arson, and broiled lobster with ice cream and mustard equal assault and battery, then given a Welsh rabbit, plus dill pickles, plus liverwurst, plus broiled lobster, plus ice cream and mustard, find the particular sort of ———ide the eater will commit.

But I fear this discussion groweth trivial.



PROCEEDINGS OF THE IOWA STATE DENTAL SOCIETY  
HELD AT SIOUX CITY MAY 5, 6 AND 7, 1903.

ADDRESS OF WELCOME.

BY MAYOR W. E. CALDWELL.

Mr. President and Members of the Iowa State Dental Society:

I am here, as mayor, on behalf of the people of Sioux City, to extend to you a full upper and lower set of their most cordial welcomes.

Most of us would much rather welcome a dentist at any time than have to be welcomed by him—in his professional capacity. One of the very dearest friends I have is a dentist; and still when I go to his office to have even a little tinkering done, I can't arouse a single thrill of enthusiasm over the visit—not even the least little flutter. But when he comes to see me my heart bounds with gratification as I grasp his hand. And in that same spirit Sioux City grasps the hands of the Iowa State Dental Society to-day, on the occasion of its forty-first annual meeting. Just let the thrill of it tingle through every fiber of your anatomy and keep it thrilling during all your stay.

During my residence of nearly half a century in the Hawkeye state, I have been prepared to believe almost anything as to the spirit of progress among its people; but candidly I have been astounded at the record of this society. So far as I can discover, it is the oldest state dental organization in the country. It was established in 1862, beating Massachusetts by two years, and antedating New York or Pennsylvania by six years.

Organizations such as these are recognized as one of the three great factors in the progress of dentistry. It was just before the middle of the last century that the profession bounded into something like independent existence in America. It was at that time that the first dental school was established, the first dental society organized and the first dental publication begun. These three creations are credited with being the foundation of the marvelous development the profession has enjoyed. During the earlier years of the '40s and '50s, the organizations were merely local affairs, but in 1862 the dentists of Iowa associated themselves for discussion of methods and for raising the standards of the profession—thus leading among all the states in the matter of establishing a state society that has been able to endure until this time. If the asso-

ciation idea is to be credited with one-third of the tremendous progress made by the dental profession, and if the Iowa State Dental Society has been educating its members for a longer period than any similar organization, who will dare to question the declaration that the average of capability among the dentists of Iowa must be higher than can be boasted by any sister state in this union? Whoever may have had the very most of the very best must be a winner. Of course Sioux City is proud to welcome representatives of an organization with such a pedigree.

I have had some personal experience as to the progress of dentistry in Iowa, even if I am still classed as a mere boy—of nearly three score years. Shortly after striking the state in 1856, it was discovered that one of my eye-teeth was loose. In order to extract it, I tied to it one end of a string, the other end being tied to the door knob, and then I shut my eyes and slammed the door. The tooth departed; but its successor in coming in hunted a new route, and finally came down through the roof of my mouth—so that every time circus posters are displayed in the town, with the open countenance of the hippopotamus showing his tusks, my wife remarks to me, "There's your photograph." And it seems to me that when my dentist looks into my mouth, and sees how I have cut at least one of my eye-teeth on the bias, a glitter of anticipation comes into his eyes as he thinks of the fun he'll have with me when he tackles that runaway cuspid, and its nerve is tickled and nibbled by bacteria of various sorts. He declares that if I am built all over like I am in the rest of my teeth, I will last forever, so he feels sure of getting a whack at it.

And when I think of it, how ardently I wish that in 1856 I might have found a capable dentist to take care of my teeth, as you gentlemen care for the teeth of children of this day and age, plucking the deciduous organs in time to prevent them from giving their permanent successors the bum steer. It strikes me that this prophylactic work of yours, for the prevention of agonies that are quite certain to come if the teeth are not properly cared for, is the greatest and best contribution dental science makes to the world, even if generally it isn't so highly appreciated as some of your more spectacular achievements. It's ever so much better to prevent the necessity for false teeth, than to turn out the handsomest set that ever counterfeited nature. I remember some of the earlier work of Iowa dentists in the perpetration of false teeth—each tooth just

about the same size and shape of its neighbors, all of them lustrous white, set in gums of the profoundest vermilion hue, so that every time the owner opened his or her mouth beholders were startled with the display. But the most that was wanted in those days was something that could chew, as was indicated by the query of the old woman, "Can a body eat with those things?" "O, certainly," said the dentist, "you can masticate as well with them as with the natural teeth." "Yes, I know that," she replied, "but can you eat with them?"

And what improvements there have been in the methods of extracting teeth. I remember the old turnkeys, which were such villainous looking implements that a sight of one produced partial anesthesia by frightening the patient out of his wits, thus conferring unexpected blessings by dulling the pain of the operation. They were used by general practitioners of medicine as well as by dentists for all sorts of pulling. Now each particular tooth has its own special forceps, and there are elevators for extracting extraordinary stubborn specimens, and tooth pulling has ceased to be so much of a massacre. And there are local anesthetics which save patients from the general hilarity of laughing gas or the wholesale unconsciousness of ether or chloroform—some of the partakers of which sometimes get things sadly mixed as they are recovering from the drug—for instance, the woman who as she wakened after having a very hard tooth pulled, asked: "Is it a boy or a girl?"

But the improvements that have been effected, elevating dentistry from a trade to a profession, from a sort of side line for the barber or the blacksmith to a well defined science, are only steps toward better and still more wonderful things. Nobody can predict what the current century is to see not only in that branch of your profession pertaining to the teeth, but in oral medicine and surgery in general. "The corroding teeth of time" may gnaw and demolish many things in this old world of ours, but dentistry will look out that the incisors of the old man with the scythe shall nibble nothing from the art to which the Iowa State Dental Society has contributed so much during the two score years of its existence.

Congratulating the society on its splendid past and its inevitable future, again I declare the welcome which Sioux City has for the eminent gentlemen who are and are to be her guests.

RESPONSE TO ADDRESS OF WELCOME BY DR. E. D.  
BROWER, LE MARS, IOWA.

Mr. Mayor, Ladies and Gentlemen:

We have listened to the eloquence of the mayor of Sioux City. We thank you cordially for the warm welcome that you, as mayor, have extended to the society. A great many of us still remember our meeting here eleven years ago, when Sioux City entertained us so royally that we hardly had time to hold our meetings. This time we had a contract with the Commercial Club granting us time in the three days' session to do our regular work. Not that we did not appreciate the Sioux City way of entertainment, for in response to the invitation to meet here this year the society gave almost an unanimous vote to come. To the various clubs that have extended this welcome, we thank you. We, as a profession, are noted as being extremely receptive, like the woman's proposal. They were dining on fowl at a restaurant. "You see," explained he, as he showed her the wishbone, "you take hold here, then we must both make a wish and pull, and when it breaks the one who has the bigger part of it will have his or her wish granted." "But I don't know what to wish for," she said. "Oh, you can think of something," he said. "No, I can't," she replied; "I can't think of anything I want very much." "Well, I'll wish for you," he exclaimed. "Will you, really?" she asked. "Yes." "Well, then, there's no use fooling with the wishbone," she interrupted with a glad smile, "you can have me." So here we are. You have us whether you want us or not. We are not altogether a bad lot of fellows professionally after all, for in the words of our I. P. Wilson:

"Who seats you in his easy chair,  
And frees you more from pain and care,  
Than any other fellow dare?  
Your dentist.

"Who takes your aching tooth away,  
And stops all others from decay,  
Then sends you joyous on your way?  
Your dentist.

"With teeth all out and mouth caved in,  
Who sets apart your nose and chin  
By giving teeth with which to grin?  
Your dentist."

Mr. Mayor, this is the time of year that we country dentists assemble with our more enlightened city friends to confer with—to have them assist and guide us in the way we should go, teach us the new things that they have thought out during the year. We stay at home all year, plodding along in our primitive way, trying to do the new things that we see our city brothers do at the society meeting. Sometimes we get them right and sometimes not. We get rusty, tired, worn-out, trying to do these wonderful things we see at the state society. And then comes the first of our May. We get our hair cut and start to the city where the society meets, to get brushed up and gather in more new ideas. Now, Mr. Mayor, we are not used to city life, and sometimes we get lost while going to our hotel. We ask you and your able assistants to help anyone in said plight to his hotel, where we have contracted to pay board for three days. Allow me once more most heartily to thank you for this generous welcome to your city.

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**PRESIDENT'S ADDRESS IOWA STATE DENTAL SOCIETY,  
MAY 5TH, 1903.**

**By Dr. R. S. Bandy.**

Members of the Iowa State Dental Society, Visiting Members,  
Ladies and Gentlemen:

Twelve years ago this month the Iowa State Dental Society held its annual meeting in this city. It was not an infant at that time by any means, for it had been in existence then almost three decades. It was the first meeting in which I had taken any special interest, therefore this meeting of the Iowa State Dental Society is of considerable interest to me, and I trust it will be to every one in attendance. In the forty years since its organization it has had its troubles of course, but it has all these years stood for and promoted the best interests of the dental profession in its broadest and best sense. That Iowa has kept pace with the growth of dentistry is well known and admitted by all. Of those who assisted in organizing, and took an active part in the first ten years of its history, few indeed are permitted to meet with us to-day. It has been my fortune and very great pleasure (although comparatively young in practice) to have known most of these men personally, and while I shall not attempt an eulogy at this time, one cannot escape this reflection: Will those who shall comprise the Iowa State Dental Society in the next three



or four decades to come, be able to cherish the same remembrances of the present membership. In order that we shall be held in such high esteem it is imperative that we keep abreast the time. Dentistry is making rapid strides in all departments. Those who attend our national convention and other large meetings, and come in contact with this progressiveness cannot help being impressed by the rapid development in dental science. The subject of education, preliminary, and dental education seem to be a paramount one. Many holding that a university training should precede a dental course. There are those who combat this position, holding that the dentist should get into active practice as young as possible, and that a course in manual training during or immediately following the high school course, would be of far more value to him. I favor the latter method, although not disparaging higher education in the least. An academic course of four years and four more years in which to complete a dental course would place the average young man well along toward middle life, and it is claimed by many teachers that the fine manipulative ability so essential to complete success, is acquired long before that period. I shall not attempt to argue this very important question, and it is one which in all probability will come up for final settlement before the National Association of Dental Faculties.

Dr. Harry P. Carlton of San Francisco, Cal., read a very able paper before the Odontographic Society of Chicago, last February, on university training and dental education. The paper provoked a very lively discussion, in which some of the ablest men in the dental world took part and brought out the different phases of the subject. The paper, with the other proceedings of that meeting, will be published by the Odontographic Society, and doubtless by the dental journals, and will certainly be very valuable material for all who are interested in the subject of education pertaining to dentistry. Educating the public through the medium of the state dental societies and the state teachers' association, was taken up by the National Dental Association, and a committee was appointed to urge the reading of a paper on oral hygiene before each of these bodies. This has been complied with in our state so far as the State Teachers' Association is concerned, Dr. I. P. Wilson of Burlington being a member of this committee from the national association, had read, a paper before the State Teachers' Association at Des Moines, and

Dr. Wilson has been invited to read a paper at this meeting in compliance with the suggestion of the National Dental Society

Many have held that the education of the public to a better knowledge of oral hygiene will be accomplished by the practitioner's efforts, and in fact this is steadily being done, but there are so many thousands who do not come under his care and therefore his scope of influence is decidedly limited. A paper on oral hygiene read before each state teachers association is certainly a step in the right direction. A few suggestions from the practitioner to the local school board, and possibly a paper on the care of the oral cavity read before the local teachers' association at their monthly meetings would in all probability result in stimulating some interest among the teachers of our public schools. It is too much to expect to have an appendix added to the regular school physiology; there would be no end to claim of every class of specialists for the same privilege. The national association has under consideration a scheme by which some method of teaching can be instituted in our public schools. This is a task which will require time and skill in accomplishing results, and I believe a start has been made in the right way. But I wish to speak more particularly of matter which immediately concern our state society. There is a matter which has caused considerable annoyance to the officials of this society. The ruling made several years ago of closing the doors of the clinic room to non-members. I believe this to be the only possible method to follow, but there should be some way of presenting the claims of society to non-members which would not result in so much antagonism. It should also be remembered that there are many good practitioners who would be a credit to the society were they members, and if some scheme, or method, could be contrived whereby candidates could become active members the same sessions the applications were taken, I think considerable friction would be avoided. Of course this would necessitate a slight change of the constitution. The membership committee is placed in an exceedingly awkward position, as well as the prospective candidate. The state society has lost quite a number who came to our meetings especially for the purpose of becoming members, simply because of the awkward methods we were bound to follow. I think our ex-treasurer has averted considerable trouble by instituting the badges, and placing his table directly across the entrance to the clinic room, and still this looks a little like a sledge hammer method to the

candidate who presents himself for admission, he of course being absolutely uninformed as to the procedure. I think, perhaps, an announcement to the effect that the membership committee would be found in session at a given place and those wishing to make application for membership should visit the committee at once so as to have their application passed upon before the time set for the clinics to be held. The Executive Committee have decided, as you will notice by the programs, that the first session of the clinic will be held Tuesday afternoon. This has been done partly to prevent the trouble I have before referred to and also to give clinicians a better opportunity and a longer time in which to complete and exhibit their operation. This is not an adventure on the part of our Executive Committee at all, as this system has been in vogue for some time by other dental societies, including the national association. I believe the change will be appreciated by the entire society, and I hope the mornings and evenings will be found to be equally as satisfactory for essays and papers, as was the afternoons and evenings.

It is generally admitted that it is the clinical program that attracts the greatest number to our meetings, and the society should make every possible effort to accommodate all who come with the intention of becoming members. The Superintendent of Clinics and his assistant have prepared a very creditable program, and the Sioux City Dental Society have done all and more than they promised when they invited the society to hold their annual meeting in the city. The Executive Committee have followed the example of other societies in cutting down the number of essays and papers, believing that two good papers for each session is sufficient to occupy the time. The only argument that can be brought against this change is that it is not so likely to train our members in essay work as the old method, when we had from twenty to thirty essays each meeting. It is not very encouraging to a member who has written a paper and finds his name well down towards the bottom of the list, and when he comes to read it finds barely a corporal guard facing him. Therefore this radical change has been made, believing that it would result in a satisfactory program and be appreciated by all.

I wish to emphasize the invitation extended through the program to all reputable dentists within the state of Iowa to become members of the state society, that we may have a common purpose

in making this society one of the best in the West, as it is already one of the oldest and best known.

Many were fearful that the attendance of this meeting would be far below the average owing to the remoteness of the meeting place. Eastern Iowa being about as near Chicago and much better railroad facilities and that many would not feel like making the journey to Sioux City and would attend other meetings as they did the Odon-tographic meeting last February. I believe the Iowa State Society men will not allow a failure to occur on account of non-attendance. A failure has occurred a few times in the history of our society, but always when the meetings were held at extreme points in the state. Still at each of these meetings we added quite a number of new local men to our membership list, many of whom to-day are among our best members. This is like all other questions of the kind, having two sides and good argument on both, still for a rousing enthusiastic meeting it seems advisable to select a central point for a meeting place. Another matter which seems to keep our membership down in numbers is the matter of fees. Many do not think five dollars per year exorbitant, and it is not, but when a member misses a meeting or two and is compelled to pay back fees he thinks twice before making up his mind to come to the meetings, and from the lack of attendance at several of our meetings it is plain that he has decided not to come. I think it would increase the membership, and, therefore, its scope of usefulness, if we could arrange to pay when we attend; have it sort of on the European plan, pay for what you get.

In looking over our membership list I find we have a total of 247 members, and out of that number twenty-five were dropped last year for non-attendance and non-payment of dues. This year will doubtless thin the ranks still further, and at that rate we cannot hope to increase the membership very considerably. When a member finds that he has been dropped from the membership list he soon loses interest, and it is difficult to get him back again.

Our constitution provides that it is necessary to be a member in good standing if he is to be invited to appear on the program, therefore our program committee is hampered in getting up a program so many men whom we would like to invite to clinic or read a paper we find have been dropped from the list of members for non-attendance and non-payments of dues. I make these suggestions in order to bring before your minds the difficulties

the Executive Committee and the Superintendents of Clinics encounter in getting up a program. I do not know how these suggestions will be received; there is certainly some excuse for making them, and I simply drop it to get an expression of the members present.

You will notice that Tuesday and Wednesday morning will be devoted to discussion of clinic. The Superintendent will appoint a member for each clinician, whose duty it will be to report that clinic at the evening session following the afternoon clinic. This is following a suggestion that was made at our last meeting. It is clear that one man cannot make an intelligent report of the entire clinic and perform the other numerous duties of that office, and I believe that it has never been attempted. It has been known all along that we are losing a very valuable part of the clinic by not having a full report and an opportunity for discussion, therefore this method has been adopted with a view of trying to get more out of our clinical program. I wish to urge every member and visitor in attendance to be present at these sessions and take an active part in the discussion. The society extends a hearty welcome to all in attendance and especially to the new men do we extend the right hand of good fellowship, hoping that you will recognize as the society does that we need your assistance and that you need the society's. Thanking you very kindly.



## CLASP PLATE WORK, WITH PORCELAIN GUM SECTION.

By Dr. Geo. W. Schwartz, M. D., D. D. S., Chicago.

Mr. President and Members of the Iowa State Dental Society:

When the president of this society asked me to contribute something to this meeting, I consented to do so, giving him as my subject a clasp plate with a short paper describing the method and giving some of the detail of its construction. It is my intention to show a reproduction of a successful practical case. In doing so am not able to show as perfect looking models as I could if I were only presenting exhibition models. This case presents the possibilities of clasp plate work, as well as its advantages. First, there is a decided tendency to pyorrhea in this mouth, which is an objection to making a bridge, owing to the condition and occlusion of the lower teeth, a bridge put in this mouth would not be as strong nor would it look as natural. It would not be as easily kept clean, to say nothing of the ease of repair should any be needed. These points I have touched on I claim are its advantages. The only objection to be offered against these plates is they fit so tightly when first put in they are unhandy for the patient to remove and replace for a few days, and the clasped teeth sometimes become a little tender for a short time, but firmness in a gentle manner with the patient soon overcomes this objection and after a patient has worn a clasp plate two weeks begins praising it.

A description of this case is the incisors, the right first bicuspid and the right first molar were missing.

Porcelain crowns were adjusted on the left first and right second bicuspid teeth to accommodate the clasps, after which the plate was made and fitted in place as shown by the accompanying model.

The detail of the method is as follows, and in order. First, the bicuspid roots were prepared for crowning; they were cut off below the gum line and caps made for porcelain crowns. Then platinum backings were soldered to the lingual half of the cap and can be seen on the porcelain crowns on the model. A porcelain facing was ground to place and the case was carved and baked. Distally and messially between the backing and the facing a groove was made while carving. This was to accommodate the clasp. After the crowns were completed, while out of the mouth, the clasps were made to fit the crowns. It is much easier to make the clasps before

Read before the Iowa State Dental Society, at Sioux City, May 5, 6, 7, 1903.

the crowns are set, and I advise doing them this way. The clasps are made by first burnishing 36Ga pure gold to the crown, then fit 27Ga clasp metal around this and flow 18K solder between them as shown in Fig. 1.

After the crowns and the clasps are made, before you set the



crowns, take a plaster impression of the mouth. This is for the model to make the die to swadge the plate. After getting a satisfactory impression you then set the crowns. The reason for this is it is easier to get an impression before the crowns are set. After you have the crowns set and in place try the clasps on to see they go on easily between the teeth. It sometimes becomes necessary to get some separation after the crowns are set for the clasps to go on comfortably. The use of vaseline facilitates the adjust-

ment of the clasps in most cases, which makes it more agreeable for the patient.

Sand was not used to run the die. Instead, the model was im-

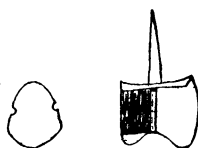
FIG. 1.



MATRIX



MATRIX AND CLASP



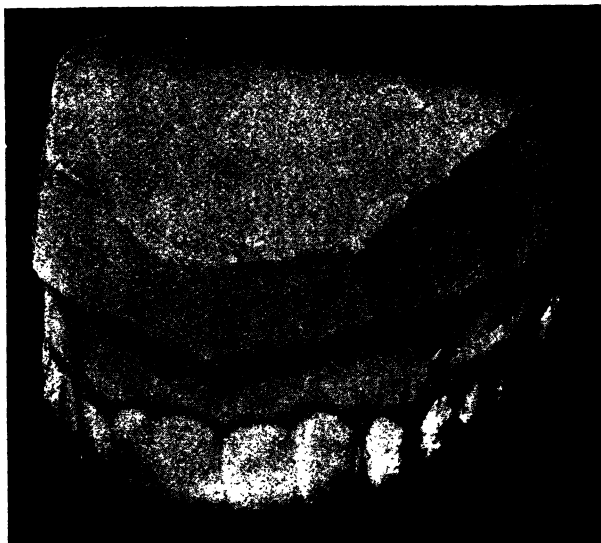
bedded in a mixture of one-third plaster and two-thirds asbestos wool. After the substance has set remove the model; then thoroughly dry on a gas burner before running the die. The counter die was run in the usual way, and the plate swadged.



The plate is made of two pieces of No. 30 Ga. 22 K. gold plate and soldered together with 18 K. solder, after which the plate should be tried in the mouth. If found correct it is next wired, as shown in cut or has a piece of plate soldered where this one is wired. This gives the necessary rigidity to the plate and a finishing line for the vulcanite.



The next step in the work is to attach the clasps to the plate. The plate is placed in position in the mouth and held in place. One clasp is put in place on one of the crowns. An impression is taken of the clasp and this part of the plate in their relative positions. The plate and clasp should be held in their proper places in the impression and a soldering investment run, after which the clasp can be attached to the plate by soldering, using a stiff piece of I. P. wire from clasp to plate and can be done before the patient leaves the chair. Return the plate to the mouth with the clasp attached; then put the opposite clasp on the crown and hold the plate in its relative



position to this crown and clasp while taking the impression, and proceed to attach this clasp as in the manner described for the first one. The reason for attaching the clasps singly is it has been my experience they draw and fit more accurately done this way. Finding the plate to go in and come out correctly it should be invested and the attachments soldered to hold the vulcanite. The case is now ready to have the teeth vulcanized onto it. A process so well known it needs no description. (Applause.)

(Proceedings of Iowa State Dental Society continued in our next.)



# EDITORIAL

## THE IROQUOIS HORROR.

It is seldom that a dental journal is called upon to depict or discuss occurrences of a public character, but inasmuch as a number of Chicago dentists and their families suffered in and from that appalling holocaust, the Iroquois theater fire, it is fitting that we editorially express our sincerest sympathy to those who were so suddenly and cruelly bereft, our profound regret at the shocking and untimely taking off of our professional associates, and our denunciation with the community at large of the dastardly betrayal of public confidence that led something like 600 men, women and children—mostly women and children—to a most horrible death. With faith in the boasts and advertisements that the play-house was “absolutely fireproof” these hundreds were suddenly plunged into eternity, and thousands of their friends, first into maddening uncertainty for hours and even days of confusion that followed, and later into heart-rending grief as the dear ones were found burned, blackened, torn and disfigured on the slabs or floors of one or more of the score of morgues that were improvised. Horrible as death was to those who could not escape, worse even has been the shock and strain upon fine sensibilities, a sort of living death, as it were, to those most intimately concerned whose homes have been desolated and bereft. Through shock and sudden grief that burst the sinews of life a number have already followed the loved ones of that fatal day, and the end is not yet. Others have already been mercifully consigned to the care and restraint of the asylum—the madhouse, reason having taken flight. O, the horror of it all! And the more is our soul stirred to its depths in sickening revulsion to this damnable deed, when we think of the little ones—the slaughter of the innocents. There they were in holiday attire and beaming faces, secure in a faith that no danger was near, but just a jolly fine entertainment. Poor little things! How our heart bleeds for them! How it bleeds, too, for the fathers, mothers, sisters and brothers called upon to suffer this terrible, terrible thing.

True it is, no doubt, that the building in itself was fireproof. There it stands almost intact, with scarcely a blemish on its exterior to suggest a thought of fire, much less of the horror enacted in its walls so short a time ago. It is said that ten days of rushed work can restore the interior to all its original splendor of finish and decoration. What then was it that burned? What could it be but the appurtenances, equipment and fittings of the stage, the most inflammable stuff imaginable and in greatest profusion from proscenium arch to rear walls. This is not different from other theaters, only that being new and up-to-date, so boasted, it was supposed to be better guarded against danger of fire than any playhouse heretofore built. How easily the public is beguiled!

The area of the stage of the Iroquois theater nearly equals, if not quite, that of the auditorium itself. Picture to yourselves, my readers, that great fireplace (which it resembled and really was) filled with the most inflammable kindling that could be thought of, and saturated with oils, oily paints, varnishes and other flashy combustibles. Compare it with your own little grate in one of your rooms at home. Fill your own grate with a lot of quick combustibles of a similar nature, touch a match, reverse the draft (if could be) and how long could you remain unsuffocated in that room with the fire and smoke belching out? Fling into the flames some chemicals that would feed them and increase, a thousand times, perhaps, the fatality of the inhaled vapors, and what would be your chances of life in a short ten minutes, if held prisoner by lock or obstructed doorway? Your fireplace is insignificant in size, compared with that of the room, yet speedy death would be inevitable under such conditions.

Here in the theater was a fireplace as large in its height, breadth, depth and capacity as the audience room; its opening, described by the proscenium arch, one whole side of the room. If, when the fire had started, a fireproof curtain had been dropped and the draft with its smoke and vapors sent up the chimney (ventilators over the stage), perhaps not a soul would have been lost. There seemed to be no such curtain and the ventilators were not open; but on the contrary, the draft was reversed—sent out into the audience room. This was done by the escaping stage people opening doors at the side and especially one large one at the back of the stage. This sent with some force the seething flames out upon the audience, which perhaps was aided by an explosion. The upper part of the house, of

## AMERICAN DENTAL JOURNAL

course, was first suffused and the flames followed the contour of the ceiling clear across to the rear wall, where it was deflected downward in a vicious curl directly upon the mass of humanity struggling for some means of escape; but not for long, for death soon followed.

Without regard to the fireproof curtain (?) if any one of a dozen ordinary, everyday commonsense safeguards had been used to prevent the starting of a blaze:—if any one of a dozen ordinary commonsense provisions had been on hand to quench an accidental flame in its incipency, more than likely the performance would not have been interrupted and the horribly sickening tale had not been told.

The total disregard of all these ordinary precautions (not to mention more extensive and pretentious ones supposed to be employed in such a place) the happy-go-lucky or unlucky methods with which things in this place were conducted, no head, no order, no instructions, no discipline as concerns fire, where the safety of hundreds were involved every day, was no less than damnable criminal carelessness. A studied effort to invite such a catastrophe could hardly be more complete. Who the miserable parties are who are responsible for this great crime of neglect it is to be hoped a vigorous and untiring investigation will determine, and then in justice, in justice only, may the law put them out of the way of ever inflicting such a horror on any community again. They are not fit to be at large.

The whole world has been taught a lesson, but O, at what a cost! May it be far reaching, for there are others who are not guilty multi-murderers only by good fortune.

It is with grief that we have to record the death of two of our highly esteemed professional brothers in this disaster. Dr. A. J. Oakey, with two young daughters, perished, leaving the wife and mother and two boys to mourn their loss. With Dr. M. B. Rimes perished his whole family, except a babe left at home with friends. Dr. F. H. Stafford mourns the loss of his wife. Others of our profession lost near and dear relatives and friends. Others had narrow and thrilling escapes. To our esteemed confrere, Dr. C. N. Johnson, editor of the *Review*, we can extend congratulations for the miraculous escape of his daughter. A wise and cool head on young shoulders, no doubt, brought her through to safety out of a veritable hell. Yet we cannot but think of other heads equally cool, no doubt, obeying their best judgment, who went down to their doom with the maddened ones around them. Remained to their doom, it may be said of some who never left their seats and were

found sitting naturally upright, some kneeling with bowed heads on the seat back in front of them, others standing against a wall or other support. Death either stole away their senses before pain brought agonized contortions, or came like a flash in one inhalation of poisonous vapor; a merciful death, perhaps, compared with some others who evidently suffered tortures relieved only by death. Miss Kilroy, a public school teacher, who barely escaped, badly burned, across the ladder pushed over to her by students of the Northwestern Dental School, tells graphically how the struggling, frantic mass became wedged in the door through which she passed but a moment before, when suddenly all effort ceased, every voice, groan and lamentation hushed and the mass sank down to everlasting silence almost in the flash of a moment.

From that same door and across that same bridge the writer saw, a few moments later, dead bodies taken by the scores.

It is but just and fitting to record here, too, that among those who hastened to the rescue and to the relief of those sufferers, were many dentists whose offices are in near-by buildings. They were in evidence nearly as much as physicians. Every dentist knows well the first treatment for burns, and many came equipped to promptly relieve distress. Side by side they worked with the physicians who, though they were there in full force, were greatly overtaxed with so many shrieking for relief at once.

The staff of THE AMERICAN DENTAL JOURNAL was represented by Dr. George W. Cook. Dr. Cook, early on the scene at Thompson's restaurant, next door to the theater, worked with coat off and sleeves up until the last sufferer was taken away to the hospital about 4 o'clock in the morning. The weather was pretty cold and scarcely any of the escaped victims saved their wraps. As this last one was carried out in the frosty air to the ambulance, thinly clad, Dr. Cook wrapped around her semi-unconscious form his overcoat. He well knew he would never see it again, and he needed it. But that was George Cook; not a selfish thought in that whole good sized make-up of his.

We wish it were possible to mention by name everyone of our many deserving confreres who rendered willing service to the unfortunates, but their names and the data are not at hand. They were all a credit to their profession and we would like to give credit due.

R. B. T.

# NOTICES OF MEETINGS

## STATE SOCIETY MEETINGS.

California State Dental Society, San Francisco, May 16, 17, 18.  
Connecticut State Dental Association, Hartford, April 19, 20.  
Delaware State Dental Society, February 3.  
Florida State Dental Society, Atlantic Beach, May 25.  
Illinois State Dental Society, Peoria, May 10, 11, 12.  
Iowa State Dental Society, Des Moines, May 3, 4, 5.  
Indiana State Dental Association, Indianapolis, June 28, 29, 30.  
Maine Dental Society, Bangor, July 19, 20, 21.  
Minnesota State Dental Association, St. Paul.  
Mississippi Dental Association, Jackson, April 19, 20, 21.  
New Jersey State Dental Society, Asbury Park, July 21, 22, 23.  
New York State Dental Society, Albany, May 13, 14.  
North Carolina Dental Society, Morehead City, June 22-25.  
Utah Dental Association, Salt Lake City, April 4.  
Vermont State Dental Society, Montpelier, March 16, 17, 18.  
Washington State Dental Society, Seattle, May 26, 27, 28.  
Wisconsin State Dental Society, Manitou, July 19-21.

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## NATIONAL SOCIETY MEETINGS.

National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.  
Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.  
National Dental Association, Southern Branch, Feb. 23, 24, 25,  
1904, Washington, D. C.

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## MICHIGAN STATE BOARD.

The State Board of Examiners for Michigan will meet in  
Grand Rapids, Mich., May 10, 1904. Respectfully,  
W. C. McKINNEY, Secretary.

## DELAWARE STATE DENTAL SOCIETY.

The Delaware State Dental Society will meet on Wednesday, February 3. Place of meeting has not been decided on as yet.

Wilmington Del.

R. H. JONES, Secretary.

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## THE SEARLE-WEDELSTADT DENTAL ASSOCIATION.

The above named association was organized from dentists in northeast Missouri at Hannibal, Dec. 15. Officers were elected as follows: President, Dr. J. F. Wallace, of Canton; vice-president, Dr. L. A. Vandiver, Hannibal; secretary, Dr. E. S. Brown, Edina.

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## NEW YORK STATE DENTAL SOCIETY.

The thirty-sixth annual meeting of the New York State Dental Society will be held at Albany, May 13, 14, 1904. A full program will appear later.

W. A. WHITE, Secretary, Phelps, N. Y.

R. H. HOFHEINZ, President, Rochester, N. Y.

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## FRATERNAL DENTAL SOCIETY OF ST. LOUIS.

The Fraternal Dental Society at its last regular meeting elected the following officers: Dr. E. E. Haverstick, president; Dr. W. E. Brown, vice-president; Dr. E. P. Dameron, recording secretary; Dr. J. A. Todd, corresponding secretary; Dr. S. T. Bassett, treasurer; Doctors B. L. Thorpe, W. L. Whipple and G. H. Mathac, executive committee.

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## MARYLAND, WASHINGTON AND DISTRICT OF COLUMBIA DENTAL ASSOCIATIONS.

The regular union meeting of the Maryland State Dental Association and the Washington and District of Columbia Dental Association will not be held this winter, as both organizations have decided to unite with the Southern Branch of the National Dental Association at the annual meeting of the latter in Washington, D. C., February 23, 24 and 25 next.

## THE FOURTH INTERNATIONAL DENTAL CONGRESS.

Gentlemen:

The following editorial, reprinted from the International Dental Journal for December, 1903, so clearly sets forth the purposes and possibilities of the Fourth International Dental Congress that the Committee of Organization desires to emphasize its importance by giving to it as wide publicity as possible. In furtherance of that end you are requested to make such use of the matter, by publication or otherwise, as it may be possible for you to do in promoting the success of the Congress.

For the Committee of Organization,

EDWARD C. KIRK,

Secretary.

The close of 1903 naturally brings the dental mind to the consideration of what may possibly take place during the coming year of 1904. The year just closing has been fruitful in many directions, and it is believed it has seen dentistry steadily advancing towards the goal that has been so strenuously worked for during many years prior to the present.

The most notable effort of 1903 has been the settlement of the controversy pending for over a year between the International Dental Federation and its committee and the committee appointed by the National Dental Association to arrange for the Congress of 1904. This controversy, which at one time was acute, has been amicably settled, and the preliminary work of the Congress is being pushed forward with an energy that gives every evidence of success. There was a small local cloud, not as big "as a man's hand," that hovered over St. Louis, but it is believed that even that has measurably been dissipated. Outsiders have had some difficulty in understanding what it was all about, but at no time did it endanger the success of the Congress. That has for its promotion a world-wide interest and can have nothing to do with local differences, only so far as a united local support is much to be desired, as it adds materially to the comfort of visitors.

At the present writing there will be but nine months in which to complete the preparation of the Congress, a time certainly limited for all that will be required. An effort should be made to secure papers of an original character. The old and tried subjects that have appeared at congress after congress, and conven-



tion after convention, might possibly be consigned to obscurity. If there is one thing trying to the patience of the average regular attendant at conventions, it is to have served up repeatedly the professional dishes that have done duty so frequently as to be no longer mentally appetizing. If the committee on papers will use a wise discretion, they will not only eliminate these, but will equally limit the number prepared on any one subject. It is very possible that the Congress will be inundated with papers on inlays and porcelain. There should be a certain amount of this, but unless the papers presented have at least the flavor of originality, they might profitably be returned to the writers. The subject of porcelain in its various phases, while not yet perfected, may profitably be left to the masters of the art, and papers from these, in all lands, must always be acceptable.

The great need of dentistry at the present time is original work, and while it is true that there is more of this than at any former period, it is not sufficiently extended, and the literature, as presented in dental periodicals, is not, as a whole, of a character to increase the feeling of gratification with the progress of the profession.

If the Congress can be made a starting-point for dentistry in the twentieth century, it will have accomplished much. The writer is, therefore, anxious that it shall prove, through its results, an incentive to scientific work. The younger generation of dentists need this encouragement. The product of the dental colleges throughout the world is of a higher character than at any former period, and its capability for greater results is equally pronounced. The character of the men having this in charge gives the assurance that this will be carefully guarded, and it is hoped that the suggestion may not be needed. It must be remembered, however, that it will be a serious disappointment if the Congress does not give us something to build upon before the time arrives for the next great international convention.

The world expects much of dentistry at this period in its history. It is recognized, as never before, as a prominent and important branch of the healing art, and our various educational means to this end must be continually advanced to meet this growing demand, and this applies with equal force to local, national and international organizations.

Criticism in advance of performance is always an ungracious act, and the writer has no cause to exercise this function upon the preliminary work already accomplished. It has been entirely satisfactory, and gives promise of important results. It is, however, well to have the opinion of all shades of dental thought upon what is or is not expected of a congress such as this. The dentists of America are responsible for its success, and in order to accomplish this they must make an exhibit of dentistry as it stands to-day in this country. If we have anything that our *confrères* in other countries do not possess it is our duty to present it. Let our work speak for itself. No claim is made that American dentistry, if there be such a thing, is any better than dentistry the world over. This claim has never been made by dentists upon this side of the ocean, although it has frequently been charged as a fact, and a very discreditable fact it would be if true. That which the dentists of this part of the world do insist upon is, that they have earnestly labored to unite dentistry into a progressive profession. Whether we are equal in this respect to other nationalities, or in advance of them, is a matter of no moment. It is believed that the dental world is rapidly growing, and narrow, contracted ideas are giving way to broader conceptions of professional duty and fraternal regard.

One of the important duties of a congress such as this is to foster the true cosmopolitan spirit, to unify the dental mind, and in this way mould the calling into a thoroughly composite body in which the several parts are indistinguishable. It will probably always be impossible to establish standards of training acceptable to all nationalities, but it may be possible to reach definite conclusions as to what constitutes a cultured dentist, and when that has been accomplished it will not be based on an education strictly medical or upon a training strictly dental. To eliminate these two extremes is a part of the mission of international dental congresses. It is to be expected, and certainly it is earnestly desired, that the entire civilized world will send its delegates to St. Louis in September, 1904, and the assurance can be extended that they will receive a cordial reception, and, further, that the home organizations will earnestly co-operate in enlarging the field of observation and practice in dentistry, in order that it may become more and more, in all nationalities, a body of cultured scientific

men earnestly laboring, without selfishness, to lessen some of the ills of suffering humanity.

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#### SOUTHERN BRANCH OF NATIONAL ASSOCIATION.

National Dental Association, Southern Branch, February 23, 24, 25, 1904, Washington, D. C. Corresponding Secretary N. D. A., So. Br., Carroll H. Frink, Fernandina, Fla.

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#### THE THREE YEAR COURSE.

At the special meeting of the National Association of Dental Colleges, held in Buffalo last month to endeavor to return to the three year system of education at the colleges, it was decided to leave the question in abeyance until the annual meeting of the association this year.

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#### WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice dentistry in Wisconsin will be held in Milwaukee, at Hotel Pfister, Jan. 25, 1904.

Application must be made to the secretary fifteen days before examination. Candidate must be a graduate of a reputable practice of dentistry college, or have been engaged in the reputable practice of dentistry consecutively for four years or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

J. J. WRIGHT, D. D. S., Secretary.

1218 Wells Building, Milwaukee, Wis.

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#### DENTAL DEPARTMENT, UNIVERSITY OF IOWA.

The Alumni Clinic of the Dental Department, Iowa State University, will be held at Iowa City, February 1st and 2nd.





DR. SAMUEL B. HOWELL.

Dr. Samuel B. Howell, professor of chemistry and physics at the Philadelphia Dental College, and formerly professor of physics and dean of the Auxiliary Department of Medicine of the University of Pennsylvania, died at Atlantic City, Dec. 12.

Dr. Howell was 72 years of age. He had been failing in health for the last four years. Up to that time he was on active duty at the Philadelphia Dental College, but since then has been professor emeritus.

Dr. Howell was identified with the dental college for more than thirty years, and until about fifteen years ago practiced medicine in Philadelphia. He was a graduate of the College Department of Princeton University and of the Medical Department of the University of Pennsylvania. Professor Howell leaves a daughter and two sons. His wife died a year ago.

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DR. J. R. HEWITT.

Dr. Joshua Roller Hewitt, aged 74, of Sharon, Pa., one of the oldest practicing dentists in western Pennsylvania, died Dec. 21, from paralysis. Dr. Hewitt was born in Alexandria, Huntingdon county, and moved to Sharon in 1868. He was one of the best known residents and was a member of the First Presbyterian church. He is survived by his wife and these children: Elmer S., of Erie; Lemuel E., of Pittsburg; Miss Anna, at home, and Mrs. R. W. McFarland, of Sharpsville. Three sisters and one brother also survive.

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DR. ELMER S. MESSINGER.

Dr. Elmer S. Messinger of New York City, died Jan. 4, at his residence, 41 West Thirty-fifth street, of pneumonia. He was a graduate of the Philadelphia Dental College and had a large practice. He was a member of Tammany Hall, the Seneca Club and the Pennsylvania Society.

## DR. H. SCOTT DOUTHETT.

Dr. H. Scott Douthett, aged 25 years, died in Pittsburg, Pa., Dec. 8, of typhoid fever. His home was in Evans City, Pa. Dr. Douthett graduated with honors from the Western University Dental College, in April, 1902. He was a member of the college staff, and gave promise of a bright future, in his profession.

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DR. R. E. FINLEY.

Dr. R. E. Finley, aged 53, a dentist of Coshocton, Pa., died Jan. 1, at the home of his brother, W. E. Finley, in Uniontown. Dr. Finley went there in December to attend the funeral of a cousin, A. W. Finley, and was taken ill and could not return home. Dr. Finley was born in Fayette county, Pa., and never married. A great part of his time was spent in traveling. He was president of the Citizens' Banking & Trust Company of Coshocton, and connected with other banking institutions.

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DAVID WHITMYRE.

David Whitmyre, senior member of the firm of D. Whitmyre & Co., dealers in dental supplies, Columbus, Ohio, died at his late residence Nov. 12. He had been in ill health for some time, but his serious illness dated back only a few days. Death was due to uraemic poisoning.

Mr. Whitmyre leaves a wife and several children.





## IN MEMORIAM

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DR. A. J. OAKEY.

Resolutions Passed by the Englewood Dental Society.

Through the will of an All-wise Providence, we are called upon to mourn the loss of one of our most beloved members, who, with his two daughters met death at the Iroquois theater fire, December 30, 1903.

Dr. A. J. Oakey began the practice of dentistry in 1889, having graduated that spring from the Chicago College of Dental Surgery. He served his patients faithfully and well. He made himself honored and respected by the dental profession, was an active member in society work, having helped to organize the Englewood Dental Society, and was one of its early presidents. He later served as secretary for the same society, a term of two years, and since that time has been active and zealous in promoting its interests and elevating the standard of his profession.

Resolved, That in the death of Dr. Oakey the members of The Englewood Dental Society have suffered an irreparable loss. Through association with him in the past, they had learned to love him as a friend, respect him for his high sense of honor and to look upon him as a consistent Christian man.

Resolved, That an expression of our sympathy and condolence be extended to his bereaved family, especially to his wife who is so bravely and beautifully facing the inevitable.

Resolved, That a copy of these resolutions be placed upon our records also that copies be sent to the leading dental journals for publication, and to the family.

T. ELHANAN POWELL,  
W. B. WINGET,  
H. O. BROWNING,  
Committee.

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DR. M. B. RIMES.

Resolutions Passed by the Englewood Dental Society.

Through the Providence of God, whose law controls the destiny of man, the career of Dr. M. B. Rimes, an active member of this society, has been brought to a sudden close. He, with his wife and three children, met death at the calamitous Iroquois theater fire December 30, 1903.

Dr. Rimes began the practice of his profession in Englewood March, 1891, after finishing his course in the Chicago College of Dental Surgery. He had a large clientele, whose confidence in his ability was amply justified by the results of his efforts. He was jealous for the honor of his profession and was active in promoting its interests. He efficiently served consecutively as secretary and president of the society, and was active in recruiting its membership among the younger men who come to our locality. His life was consistent with his principles and with his ideals, and he was respected and loved by his associates.

Resolved, That we give to the remaining members of his family an expression of our sympathy in their great bereavement.

Resolved, That a copy of these resolutions be made a part of the records of the society and that copies be mailed to the leading dental journals for publication, and to his family.

T. ELHANAN POWELL,

W. B. WINGET,

H. O. BROWNING,

Committee.

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#### DR. JONATHAN TAFT.

Résolutions adopted by the Odontological Society of Chicago.

Whereas, It has pleased the Divine Ruler to call into eternal rest Johnathan Taft, who passed the portals of the great unknown October 15, 1903, after a long and vigorous career of usefulness in the profession; and,

Whereas, This Society especially feels his demise from the fact that one-half of the members constituting this body have received a large portion of their early dental knowledge and training directly from his lips; and we further recognize that he was unique in his power to impress upon the pupils who sat under his instruction sound principles of ethics and practice. He was great in his goodness, a characteristic which stands as a shining light for others to see and follow in his footsteps; therefore, be it

Resolved, That the Odontological Society of Chicago hereby testifies to the loss experienced by the profession in the death of Dr. Taft, and extends sympathy to the family in their bereavement; also

Resolved, That these resolutions be spread upon the records of this Society and that a copy be forwarded to the dental journals for publication.


(Signed.)

J. G. REID,

L. L. DAVIS,

J. W. WASSALL.

Adopted January 12, 1904.



## BOOK REVIEW

We have just had the privilege of reviewing the published lectures of Thomas L. Gilmer, M. D., D. D. S., Professor of Oral Surgery in the Northwestern University Dental School. It is safe to say that this is the first published text on oral surgery that comes within the range of the comprehension of the dental student. The author of this little work has truly condensed the subject of oral surgery in a way which makes it unnecessary for the student to read pages and pages in order that he may get what is useful and practical to the average practicing dentist.

The author in his preface in the second edition says that "these lectures are only brief outlines of the subject presented." "In my clinical course much matter not included in this volume is given." **According to this statement it is intended as a text for the dental student, and the author has certainly fulfilled this mission in an admirable way.** In the developmental alliance of the morphological phenomena, with the natural history of disease, the science of pathology has attained to a degree of perfection. And the author of these lectures has in no sense attempted to discuss theoretically the knowledge of pathology—but has plainly set forth a clinical means of diagnosis and operative procedure which justly belongs under the heading of Oral Surgery.

In the second lecture the author has set forth in a very brief and comprehensive manner, the various stages of inflammation. His explanation of some of the various phenomena that take place in this most interesting disease process it would seem is not quite full enough for such an important work, for upon this phase of pathology rests the true conceptions of clinical diagnosis. In view of our increased knowledge of cell physiology and of the impulses immediate and hereditary, which determine the cell activities, it would seem possible that this complexed process known as inflammation could be reduced, to embrace the more simple factors that enter into the process, and yet set forth the subject in a very scientific manner from a clinical standpoint. But there is so little in this that one



can differ from the author, for he is dealing with the subject from purely a clinical standpoint.

The lectures that are devoted to fracture of the maxilla and the various methods of treatment is certainly very interesting, and no student or practitioner could fail in being greatly benefited by studying these lectures. They are simple, plain and comprehensive, and yet cover all the points necessary for a work of this character. Another thing that is pleasing in this little work, is, that the author has left out a long discussion of the conceptions heretofore held concerning the cause of cleft palate and hare lip. He has discussed this subject from purely a practitioner's standpoint.

The twenty-fifth lecture has been devoted to odontones. This peculiar pathological phenomena is certainly one of great interest to the oral pathologist, as well as the general practitioner. And those who may study and read this lecture as set forth by the illustrations cannot fail to be greatly benefited.

The last lecture in this little volume entitled "Affection of the Lips, Tongue and Mouth," was written by L. L. McArthur, M. D., and certainly deserves the highest praise, for it places certain pathological lesions of this locality within the comprehensive grasp of every dental student.

While the author has not intended this little book as a treatise on the subject of oral surgery, he certainly is to be congratulated on the arrangement of the subject for teaching purposes.

G. W. C.



## ORAL SEPSIS AS A CAUSE FOR PERNICIOUS ANAEMIA.

In an article on this subject by William Hunter, M. D., Edin., F. R. C. P., London, published in the *Lancet* (Jan. 27th, 1900), the author gives the following conclusions:

"1. Pernicious anaemia is a special form of chronic blood poisoning—a toxæmia.

"2. It is the result of a special infection of the digestive tract, especially of the mouth and stomach, and probably, though to a less degree, of the intestine.

"3. The chief source of infection is through the mouth from long-continued and neglected cario-necrotic conditions of the teeth, and sometimes, possibly, from stomatitis arising from other causes.

"4. The usual effect of this infection is a chronic infective catarrh of the mouth and stomach, which may in time lead to deeper-seated changes, e. g., ulcers of the mouth and tongue, chronic glossitis and atrophic changes in the tongue, or chronic gastritis, with atrophy of the gastric glands.

"5. The evidences of the infectivity of the organisms of dental decay are overwhelming.

"6. The infection is chiefly streptococcal, and probably derived its special characters from being of a 'mixed' character.

"7. Such infection the more readily occurs if the stomach or intestine is already, from any cause, the seat of disease.

"The above conclusions suggest certain new considerations in regard to treatment, of which the chief one is the importance of minute attention to the hygiene of the mouth, and especially of the teeth, with the immediate removal of every source of infection."

The importance of oral cleanliness which is emphasized by Dr. Hunter in the above article, has lately received much attention from the medical profession. Various forms of infection, both local and general, have been traced to the mouth and teeth. In Glyco-Thymoline we have an excellent antiseptic mouthwash which not only cleanses but, on account of its alkaline reaction, prevents further decay.

It is a well-known fact that the formation of lactic acid causes decay of the teeth, and that this process is absent or at least proceed very slowly when the saliva is alkaline. Normal human saliva is slightly alkaline, but the alkalinity is so weak that few mouths are capable of a prompt recovery from the acid condition, nor is the

alkalinity usually strong enough to counteract the acids of decay; hence it seems rational to endeavor to supply this deficiency.

Saliva is composed in part of mucus, which is readily soluble in a properly combined alkaline solution, while it is insoluble in alcohol, ether or acid solutions. Bacteria develop rapidly in this undissolved and undisturbed mucus in and about the teeth, causing continued and increased acidity of the saliva.

These facts indicate that an alkaline solution is needed at the portal of the body for protection.

Dr. A. H. Peck's analysis of a number of mouth preparations proved that but one of many had the essential feature for the purpose desired, namely, that of alkalinity; this solution was Glyco-Thymoline.

Alkaline saliva seems an undoubted aid to digestion, and if it can be induced to flow and be kept alkaline, many stomach disorders will disappear.

The mucous membrane under the action of Glyco-Thymoline becomes hardened and normal, and naturally offers greater resistance to disease; the daily application of the remedy as a mouth-wash does much good, maintaining an alkaline, or normal condition.

Glyco-Thymoline is a scientifically prepared solution, of the alkalinity of the blood serum, and of correct specific gravity, forming an agreeable, non-toxic, alkaline alterative. It readily dissolves the mucus which forms part of the salivary secretions and thus penetrates every cavity of the teeth and mouth; it has a distinctly alterative effect upon mucous membrane, acting by exomosis, thus not only reducing inflammatory engorgements and establishing a normal condition, but also maintaining this condition by continued use.



## PERSONAL AND GENERAL

### FIRES.

Dr. App, of Maroa, Ill., suffered a considerable loss by fire Dec. 26th.  
Dr. Walker, of Walcott, Ind., lost his office and contents by fire Jan. 2d.  
Dr. Chas. A. Fallen, of Libertyville, N. J., lost \$1,000 by fire Dec. 28th.

### SUICIDES.

M. H. Leech, a dentist of Liberty, Ind., Jan. 4th; pistol.  
Edward Voight, dentist, Dec. 29th; rope.  
E. C. Swain, Cleveland, O., Dec. 22d; gas.  
Joseph Schwett, dental student, New York; carbolic acid.  
R. T. Sheppard, Chicago, dental student; gas.

### MARRIAGES.

Dr. C. C. Bauer, of Richmond, Ohio, to Miss Anna Hastings, Dec. 28th.  
Dr. Geo. E. Mason, of Milwaukee, Wis., to Miss Luella Lockwood of Racine, Wis., Dec. 17th.  
Dr. James A. DeLoach, of Grenada, Miss., to Miss Charlotte Parsons, of Louisville, Ky.  
Dr. C. M. Smith, of Fort Collins, Colo., to Mrs. Helene Jennings, same address, Dec. 12th.

### TO INDIA.

Dr. D. H. Davison, of Streator, Ill., will leave about March 1 for Bombay, India.

### ROBBED.

Dr. Hamilton, of Council Bluffs, Iowa, lost a considerable amount of gold by sneak thieves Dec. 9th.

### VULCANIZER EXPLODES.

Dr. Hugh Garrett, of Coldwater, Miss., was seriously burned by the explosion of a vulcanizer in his office Dec. 8th.

### THE DENTAL PROFESSION AGAIN HONORED.

Dr. P. C. Howland, the Seventh street dentist, went to the masked ball at Germania Hall last night and won the first prize as the best waltzer. The prize was a catching glove.—Rockford (Ill.) Republic.

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EXACT.

Dr. H. A. Ickes, a Norwood (Pa.) dentist, received a bill from the Suburban Gas Company for a balance of 1 cent. Not to be outdone in exact business methods, he drew his check for 1 cent and mailed it to the corporation.

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ACQUITTED.

N. H. Spencer, of Rochester, N. Y., was acquitted Jan. 7th of the crime of practicing dentistry without a license.

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NEW DENTAL COLLEGE.

McGill University, Montreal, Canada, will have a dental department in the near future according to the Montreal Gazette.

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ARRESTED.

Charged with entering the dental parlors of Dr. Taggart, of Canton, and stealing \$25 worth of gold, Wm. T. Lyons, one of the detachment of soldiers guarding the McKinley tomb in Westlawn Cemetery, is under arrest.

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DR. HARPER HONORED.

A large number of dentists assembled at the Mercantile club rooms St. Louis, Dec. 18th, for a banquet given in honor of Dr. John G. Harper. Dr. Harper was given a handsome silver service as a memento of the esteem in which he is held by his fellow practitioners. The presentation address was made by Dr. M. C. Marshall.

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AMERICAN DENTIST ARRESTED IN PARIS.

Because a dentist named Dubouchez, who is practicing under a Philadelphia diploma, indicated his calling by the simple title of "doctor" on his sign, he has been condemned to pay a fine and damages amounting to \$25. Suit was brought against him by the Paris Society of Surgeon Dentists. The society claims that the sign deceived persons as to the real character of his calling and that Dubouchez did not make known the foreign origin of his diploma. Dr. Dubouchez has carried the case to a higher court.

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STUDENT MISSING.

The hope that J. T. Anderson, the Indiana Dental College student who has disappeared from Indianapolis, had gone to his home near Red Wing, Minn., was blasted last night by a dispatch to The Star saying the young man had not arrived home. His father, ex-Senator John Anderson, a farmer, who lives in Vasa, a small settlement twelve miles from Red Wing, had not heard of the disappearance and said his son had not come home and was not expected.

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MRS. EDDY CALLS DENTIST.

Rev. Dr. James M. Buckley, an able Methodist preacher and editor of the Christian Advocate for some time, is fiercely attacking Christian Science and its chief advocate, Mary Baker Eddy. He declares Mrs. Eddy does not practice what she preaches. As an instance he relates that she had a toothache and instead of bringing to bear her fundamental principles she sent out for a dentist. More than that, she was placed under the influence of an anæsthetic so that no pain should be felt while the troublesome tooth was being extracted. Dr. Buckley laid particular stress upon this story, saying it was authentic and could not be disproved.

## BANKRUPT.

A. Theodore Kline, a dentist of Toledo, has filed a petition in bankruptcy. Liabilities are \$7,871.19, which included secured claims of \$1,010 and unsecured claims of \$6,711.19; assets are \$48, which he claimed as exemption. It is understood that Kline made some investments in a sanitarium concern, which placed him in the present condition.

## HIS TWO WIVES IN COURT.

Harry Bey, 36 years old, a dentist, who is also known as John Carlton, was confronted in the Yorkville police court, July 14, by two young women, each of whom said she had been married to him. He was arrested on a charge of abandonment, preferred by Mrs. Augusta Bey of 125 West 128th street, New York. He married her, she said, eleven years ago.

Five years ago, the woman said, Bey left her and went to Boston. There he met Miss Mathilda Richey, to whom he was known as John Carlton, and whom he married, it is said, on Oct. 3, 1898.

A year ago Bey left her, and, coming to New York, went to live with wife No. 1. Miss Richey followed him and says that she lived with him at 318 West 121st street, not knowing that there was another Mrs. Bey living near by.

She learned of this a few days ago, and returned to Boston, where Judge Freeman of the Municipal Court of Boston issued a warrant for Bey's arrest. Bey knew nothing of this second charge until to-day, when he was called to answer the complaint of his first wife. Then he admitted having married both women.

## DR. BARRETT'S WILL.

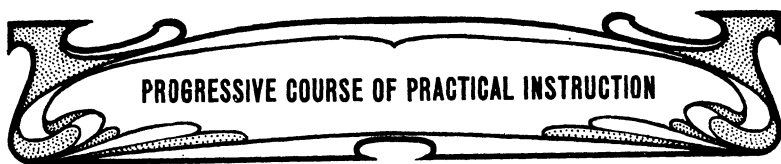
The will of the late Dr. William C. Barrett, dean and one of the principal founders of the dental department of the University of Buffalo, disposes of property valued at \$7,000, including the following bequests. All his professional and scientific collection of drawings and specimens to go to the dental department, together with a pastel portrait of the testator.

Dr. Barrett also bequeaths his operating chairs, cases, tools and instruments to the dental department to be disposed of by the faculty as prizes for deportment and high attainments or to poor but deserving students, as the faculty may elect.

The fine collection of Etruscan relics, curiosities, guns and weapons of the late dean is bequeathed to the Historical Society.

"It is my desire that my small accumulations may finally be devoted to the work which has engaged my attention during life," is the language of the will. "I wish the consolation of the belief that I may be able to assist in the work of professional education after my death."

Pursuant to this wish, the will directs that after the death of Emily H. Barrett, who is named as executrix, the unexpended portion of the estate is to go to the council of the University of Buffalo in trust to be invested for the benefit of the dental department, for the establishment of a "Barrett prize" of \$100 to be awarded to the student attaining the highest general average, and to provide \$100 scholarships for worthy or deserving students.



## PORCELAIN CROWNS.

(By F. Ewing Roach, D. D. S., Professor of Porcelain Art,  
University of Illinois.)

### CHAPTER VII.

The present day porcelain crown properly constructed and judiciously applied is indeed a near approach to the ideal substitute for the natural tooth. With the great variety of splendid bodies furnished by the dealers, including a vast selection of colors, a wide range of fusibility and most every other feature to be desired, there seems to be no limit to the possibilities of this department of our work.

The advent of the electric furnace has been the prime cause of latter-day rapid development in dental ceramics in general, and with the general development crown work has not been overlooked. The electric furnace has brought porcelain work up from a place of drudgery and uncertainty to a really fascinating pastime. What wonder that so few undertake porcelain work when the old coke furnace was the only means of "baking."

Those of us who are to-day enjoying the luxuries of the electric furnace can best appreciate our advantages over the pioneers in the porcelain field by comparing our modern electric furnace and the old coke over to our modern gas range and the old wood stove.

Nor has the rural dentist been forgotten in the advance. While not so desirable in some respects as the electric, the gas and gasoline furnaces afford adequate heat with such facility and reliability that the practitioner located in the most remote parts of the country may avail himself of the use of porcelain wherever its application is indicated and with results equal to those obtained by his city brother who used the electric furnace.

Recognizing the inherent friability of porcelain and the exacting requirements in its manipulation, we cannot expect to obtain the

best results if at any time we become careless or indifferent. A clear conception of the requirements and their strict observance, coupled with a judicious application, will insure results pre-eminently satisfactory in every respect. In determining when and where the porcelain crown is indicated, we must take into consideration primarily two things—possible stress and bulk of porcelain. For esthetic reasons the ten anterior teeth should, when possible, be crowned with porcelain and by reason of less masticatory stress being brought to bear upon the six anterior teeth they are especially favorable for this class of crown.

The porcelain crown is contra-indicated in inconspicuous places generally and always where a close bite precludes the employment of sufficient material for strength.

Aside from esthetic advantages the porcelain crown is decidedly more sanitary and possesses greater strength than the so-called Richmond crown with unprotected facing. The attachment of the body built in on lingual surfaces supplements the pin attachment of facing—which does not obtain in the soldered facing—by uniting with and forming an integral part of the whole crown.

Without further discussion of its merits or demerits we will take up the essentials of construction and application of the porcelain crown from foundation.

First of all let us see to it that our foundation is as it should be. Assuming that the pulp canals have been properly cared for, we proceed to prepare root for adjustment of band and dowel. Having ground off crown portion of tooth very nearly to the gum, the remaining enamel should be removed with cleavers, and the end of root so trimmed that it presents a cone shaped appearance. The measurement should now be taken and band fitted. About 29 gauge platinum should be used and to insure a snug fit it is well to cut piece for band slightly shorter than measure, so that when fitting it may be forced to place and stretched a little if necessary. I have found it a good rule to make band slightly smaller and if necessary draw out some by a tap of the hammer on the anvil. This is easily done and insures an accurate fit; whereas, if the band were a little too large we are liable to let it go at that rather than cut out piece and resolder.

If gold is used for soldering band a necessary precaution against subsequent opening of joint during baking is the lapped end joint.



Before soldering the ends should be hammered or filed to a feather edge, thus avoiding unnecessary thickness where the lap occurs.

Having band accurately fitted to periphery of root and irregularity of free margin of gum so that there is no impingement upon periodontal membrane it should be removed and root shortened—especially labially so that the free margin of gum will overlap and obscure from view the band, which is left exceedingly narrow at this point. Replace band on root and with a sharp pointed instrument scratch outline of end of root on inside of band, remove, trim to mark and readjust on root; after which the cap plate—30g platinum—may be soldered on. This is best done by placing band on piece to be used and soldering at some point of contact, after which the cap plate is easily burnished into contact with band and soldered without distorting same. Excess is trimmed off, cap is again adjusted to root and a sharp pointed instrument is forced through cap plate into pulp canal—into which the post has been previously fitted—and the post forced through the small hole into the canal.

Impression and bite may now be taken, articulated model secured, facing ground in and waxed securely together with cap and post, preparatory to investment, after which facing and post may be soldered simultaneously, thereby obviating the necessity of two investments. After soldering the piece should be boiled in sulphuric acid and all sharp angles removed from end of pins and post.

(To be continued.)



## OPERATIVE DENTISTRY.

By R. B. Tuller, D. D. S.

Clinical Professor of Operative Dentistry, Chicago College of Dental Surgery.

## CHAPTER XI.

## PRINCIPLES INVOLVED IN THE SHAPING OF CAVITIES.

After the removal of decay the next thing to consider is a retentive shape; for it goes without saying that no metallic filling will stay long in a cavity not shaped to anchor or mechanically retain it.

In securing this anchorage it must be borne in mind that it cannot be depended upon when secured under or behind overhanging enamel which is very likely, sooner or later, to cleave off. When possible to do so the cavity should be shaped with two parallel walls.

Between two such walls a gold filling may be packed so as to stay firmly without under cuts. However, slight under cuts at the floor of the cavity may be made without detriment, but they are not needed by operators who have been educated to wedge-lock their fillings and rarely make retaining pits.

About the simplest cavity and a typical one, if any such thing can be typical, for gold or nonshrinkable metallic fillings is what Dr. George H. Cushing used to call, metaphorically, an augur hole, as deep as it is wide.

Our augur in dentistry is the bur or drill. The augur hole has parallel walls and should have a flat floor. A round head bur leaves of course a rounded out bottom. This rounded out bottom in some cavities does not preclude the possibility of getting a well anchored filling if deep enough, but it is a well established mechanical principle that a square or flat—not rounded out—base is the correct one on which to lay our foundation, not to mention the difficulty of starting a filling with firmness on a rounded out floor.

To illustrate: If we have but a shallow cavity that is saucer shaped we would find it very difficult indeed to place a metallic filling in it; while if we take the same cavity and shape it with a flat floor which would give walls at right angles with the floor a filling may be placed in it and so wedged against the walls that it will remain firm. It may not be an altogether easy proposition in an extremely shallow cavity, but with painstaking and proper instruments it can be done, while in the saucer shaped cavity it cannot be placed at all.

The deeper the cavity and the more side walls we have to wedge against the less difficulty though the bottom be concave, but it has been proven over and over again that a filling may be much more easily dislodged in the wear and tear of mastication from rounded out base than from a square one.

In a cavity in the proximal surface of an incisor extending any distance in the axial direction of the tooth we naturally consider the gingival wall the base. If it is but a small round or oval cavity the pulpal wall may be the base. In cavities where considerable structure is gone, involving perhaps the labial and lingual walls and the incisal edge, we would have a filling subject to considerable lateral strain in the natural use of the teeth. It can be seen that our anchorage must be obtained largely at the base, or the gingival portion of cavity. Other anchorage points may be found, but they are often slight and but auxiliary to the anchorage at the base. In teeth not too long and slender the author has in many instances secured at the gingival almost the entire anchorage for fillings of considerable restoration and contour running clear to the incisal edge. This was not uncommon with older practitioners with certain forms of teeth, but later by a pretty free use of extension for prevention linguallly at or near the incisal edge, which will be described later in the course, additional anchorage may be obtained, an improvement over the pit, no doubt, that we used to try to get at the angle formed by the two enamel plates.



Referring to cuts A and B, two fillings are represented, one with square base, the other rounded. It needs little argument to convince anyone that it would be much more difficult to dislodge the square base than the rounded one by lateral strain.

Cuts C and D represent two fillings in the proximal surfaces of bicuspid, one square, the other rounded. Unless we use special effort to cut the base square we find in the usual course of clearing such cavities, that we have a rounded cavity something like D.

Now the strain that comes on these fillings is not a lateral strain,

but on the occlusal thrust of mastication. Aside from the thrust that might push the filling out of the cavity towards the adjoining tooth unless guarded against, there is almost a certainty of dislodging the filling in time by the force of mastication coming first on the buccal and then on the lingual prominences. Through this pounding, as it were, the filling is forced to slightly rotate until it becomes leaky and eventually loosens up. But with a square base such a thing cannot happen.

There is no question but what a square base is a scientifically and mechanically correct principle to be adhered to as much as possible. There is scarcely a cavity that the principle does not come more or less into play. If we make a step cavity the step as well as the base should be square.

It is a well-established fact, too, that the elimination of undercuts, or at least of certain kinds of undercuts, makes a greater certainty of the operator being able to perfectly adapt his gold to the walls. If walls are pitted, corrugated and undercut it certainly takes a much more painstaking effort to adapt or coapt gold than if the walls were reasonably smooth. In packing gold in the direction of the base of our filling, there is a tendency to slide it down the wall of the cavity and condense it on itself with perhaps a very faulty contact to the wall unless particular effort has been made to condense in that direction. Even then deep pits and corrugations are not firmly packed to the bottom.

Whenever undercuts are made they should as a rule be made close to the cavity floor and very careful effort made to carry gold surely to the bottom of each cut. It is the habit of some operators to score the walls of a cavity, in many instances, with a cross-cut bur, leaving it deeply corrugated. Unless such a cavity is lined with cement it is almost impossible to make a tight filling with gold foil. Crystal gold pressed directly towards the wall does better than foil and yet it stands to reason that the gold is not as dense in the bottom of these minute trenches as at the prominences. The frictional grasp of a corrugated wall is good and no doubt holds a filling in well until eventually the infiltrated moisture that must and does find its way in behind such a filling sets up the decay that releases our filling and causes failure.

The simple cavity, round or oval, with a square floor and fairly

smooth walls, not deeply pitted, undercut or corrugated, is a good model to keep in one's mind though a greater or less departure is necessary in every cavity one has to form.

In a general way we divide cavities into two classes, as to character—pit and fissure cavities and smooth surface cavities. Faulty development of the enamel of the teeth is primarily the cause of the former, while the latter—smooth surface cavities—are those occurring on surfaces where the enamel is not primarily defective. Then we divide cavities again into simple and complex. Simple ones involve but one surface; complex involves two or more. The simple cavities are labial, buccal, occlusal, etc. Complex cavities may be mesio occlusal, disto occlusal, mesio disto occlusal, disto labial or buccal, etc.

For the reason that many good and careful operators in years past have observed that with all their conscientious painstaking, fillings came back frequently perfect except evidences of recurring decay at about the same points in various individuals. Most noticeable was the gingivo lingual and the gingivo labial angle, and often the incisal angle. The reason for failure at these points was determined to be due not to lack of careful manipulation but that the areas about these points were predisposed to decay by reason of not being kept clean by the natural friction of food in mastication. In an effort to overcome this frailty there has grown up the practice of extension for prevention. That is to say, in these proximal fillings, for instance, the cavity is extended both labially and lingually until those weak points were carried far enough away from the close approximation of the adjoining tooth to insure natural cleansing in mastication. The whole cervical or gingival border has been a weak spot in most of these proximal fillings. For this reason some operators make it a point to extend this border of the filling up above the gum line finding that a margin so covered by gum tissue is better and safer than margins not coming up to the gum.

Now, when we have extended in this manner we have made the two lateral walls diverging or flaring, so that there is absolutely no hold on the filling at those walls. To get anchorage then further extension is made over into the occlusal producing a so-called step cavity. A slight retaining hold is secured in the gingivo-lingual and gingivo-buccal corners, but the main hold is in anchorage received occlusally. It takes pretty skillful work to put in such fillings,

since it is so easy to dislodge until the final anchorage occlusally is obtained, but when it is done it is very strong and satisfactory, and well safe-guarded against occlusal thrusts of mastication.

In following out this scheme for a gold filling it means the enlargement of the cavity three, four, five and sometimes six times more than the original cavity of decay, and the loss of a good lot of sound tooth tissue. It takes a pretty high degree of confidence on the part of the patient in his dentist, if observing, to see a cavity enlarged from an almost unobservable spot on proximal surface of a bicuspid or molar to a great wide gap, a good third of the tooth if not more, most of it cut from good sound tissue, and not waver. Extension increases the size of the filling of course and the prolonging of time necessary to put it in, and some patients are aghast at the difference in expense.

Extension for prevention is a good thing in many cases. It is the right thing and only thing to be done very often; but unless the operator be far above the average in his ability to perfectly adapt gold to the walls of a cavity so that there is little chance of recurring decay—so it won't leak and will preserve, he had better confine himself to removing decay, and a little more, and filling with a good cement; for recurring decay around one of those large extended fillings soon puts the whole tooth to the bad and one has a broken down masticator fit finally for a crown only. Extension that comes to this in a few years is not good practice.

(To be continued.)



## DENTAL THERAPEUTICS.

By Geo. W. Cook, B. S., D. D. S., Chicago, Ill.  
Professor of Bacteriology and Pathology, University of Illinois.

## CHAPTER XII.

Some of the more characteristic features of the pharmacological action of the heavy metals have been discussed, and it is safe to say that the metal itself has but little if any deleterious effects upon living protoplasmia but that it must be in some way disassociated or broken up chemically in order to bring about a chemical reaction between the metal and the proteid molecule.

We discussed at some length arsenic and its compounds and also its therapeutic uses. One of the metals that are classed among the heavy metallic substances is antimony. While as we have previously said that antimony is closely allied in its general characteristics to that of arsenic, still its behavior is such as to be classed in another category; and so little stress has been laid upon its therapeutic value in later years that it is not necessary for us here to allude to it only in a brief manner. In the early part of the last century this agent was somewhat extensively used but has gradually lost its popularity for therapeutic purposes and is now only treated in general text books because it has one compound that still holds an important place in the list of drugs to be used for their general constitutional effects. This is tartaremetic a double salt or a double tartrate, being a compound of antimony and potash ( $K(SbO)C_4H_4O_6$ ). When this agent at first came into general use it was thought that its effects were due principally to the potassium in the compound, but later study upon the pharmacological phase of the subject found that its action was due to the antimony.

The physiological effects of this salt in its general characteristics is like that of most of the double salts, having but little corrosive properties except in the presence of an acid media and in such a media it acts upon the proteid substance because it is broken up into a simpler chemical constituent. Tartaremetic when rubbed on the skin causes eruption and redness which if continued for any length of time forms small vesicles and pustules, and possibly a necrotic condition may eventually take place. When this agent is taken into the stomach in small doses no general symptoms are observed except possibly perspiration, though if large doses be administered nausea

and vomiting followed with marked depression accompanied by perspiration and a free flow of saliva, with increased pulse. When sufficient quantity of the drug has been administered to cause poisoning the vomiting continues and a profuse watery diarrhea, a feature which is so marked in arsenical poisoning; the skin is cold and covered with a clammy perspiration and a general muscular weakness; and if a fatal dose has been taken the voice becomes weak and husky; the temperature is lowered and a comatose condition follows with deep respiration. At first the quantity of urine is increased and gradually grows less in quantity until it is gradually suppressed; and there is always to be found albumin present in the urine.

The explanation of tartaremetic when taken into the stomach is supposed to be due to the acid in the gastric juice on the double salts, disassociating the molecular compound in a way that a chloride of antimony is formed which acts as a corrosive in very much the same way as that of any of the other chlorides of the heavy metals. The chloride of antimony can be used in very much the same way as arsenious acid for the devitalization of the pulp of the tooth. My personal experience for devitalizing purposes has demonstrated that the pulp can be devitalized with chloride of antimony but that it takes a longer time and in the majority of instances is somewhat more irritating. The application with morphine and apomorphine frequently gives but little pain, and if a long time is desired for the devitalization of the pulp this agent can be successfully used. It passes into the tissues much slower than arsenic and consequently it is not so readily taken up by the tissues, therefore producing but little corrosive effects. For the devitalization of the deciduous teeth it can in the majority of instances be used with less liability of passing into the tissue beyond the apical end of these teeth, one of the things that is scarcely avoidable with the compound of arsenic that is so universally used.

Where it is desired to use an agent in the deciduous teeth for devitalization the carious matter can be removed, so far as is possible, and with a weak alkaline solution and with a pledget of cotton wipe the cavity out, mix up a thin solution of chloride of antimony with apomorphina or morphine and with a pledget of cotton place it into the cavity and gently pack over this a warm piece of gutta-percha, and with a warm instrument gradually pack the gutta-percha into the cavity of the tooth. In this way there is but little danger if the treatment is left in the tooth for several weeks. When



the patient again returns the pulp will be found to be almost or solely devitalized and can be treated and filled in the ordinary way.

While as I have found in many instances this to be the most successful method in devitalizing deciduous teeth it cannot be used successfully in all cases. It must be borne in mind that such procedure is not adapted to all cases, but where it can it will prove to be the most efficient and successful means of getting rid of a class of cases that many times tries the patience of the dentist.

In the care of the deciduous teeth as in the care of all teeth the dentist is constantly dealing with practically an unknown quantity of protoplasmia, the chemical and physical properties of which his knowledge is very deficient. In an effort to relieve pain and suffering and to restore an organ that has partially been lost, there is no class of therapeutics that deserves such profound knowledge and care as does the teeth, for upon them depends to a large extent the usefulness and happiness of the individual who possesses them.

Right in this connection we will take up another agent which is considered to be one of the most powerful inorganic poisons, the various forms of which have been used in medicine for a long time. The different compounds of this substance differ in their general characteristic effects only so far as the salts differ in their solubility, or in other words, in so far as they are capable of becoming disassociated. We have reference here to mercury. We have previously called attention to the salts of the heavy metals in a general way. A soluble salt such as the perchloride of mercury has a powerful local action because it is very soluble and is capable of rapidly being absorbed, while on the other hand the effects of calomel is less active owing to the fact that it is insoluble in water. However, this last named compound will set up all the constitutional symptoms when applied in sufficient quantity and for a longer time than that of the perchloride. The difference in the action of the two salts is due solely to the capabilities of each being disassociated, one going into solution very rapidly while the other is slow and requires more time for the tissues to get a quantity sufficient to form a compound of mercury which is taken into the circulation and passes through the blood the toxic symptoms of the protoplasmic structure. The salts of mercury are taken into the circulation and passes through the blood stream in the form of an albuminate of mercury. The compound known as albuminate is insoluble in water but is soluble in an excess

of proteid substance or in a physiological salt solution; therefore, when albuminate is in the circulation it will readily pass into solution. From the fact that it is in the presence of an excess of proteid or a physiological solution of sodium chloride. The albuminate is readily formed when the perchloride of mercury is brought in contact; thus the rapid poison effects can be accounted for.

There has been considerable speculation with regard to what action takes place when calomel is administered in quantity or for sufficient time to produce the constitutional symptoms of mercurial poisoning. It has been thought by some of the very best authorities that when calomel is administered by the stomach that the hydrochloric acid of the gastric juice of the stomach changes the calomel to a perchloride which is readily absorbed, forming the albuminate of mercury which as has already been said is the source of the poisonous symptoms. But according to later explanations such a chemical reaction is not necessary, but that the proteids present in the tissues can directly change the calomel to an albuminate of mercury. It has been thought by some that when calomel is injected that the leucocytes of the blood take it up as they do any other foreign agent and distribute it to various parts of the body. If that is true it is quite possible that such a process may be established when calomel is passed into the alimentary tract or some of the more insoluble compounds of mercury may gain admission into the circulation through a like process. Or it is possible for the metallic mercury to gain admission into the general circulation through the oxidizing process, for it has been observed that when mercury rubbed into fine globules and applied in the form of an ointment to the skin it passes into the ducts, glands and along the roots of the hairs. It is oxidized into a soluble form and is absorbed by the tissues.

Mercurial poisoning is produced only when a very soluble compound has been used as perchloride, or when the individual has been exposed to the inhalation of vapors of mercury or applied in the way above mentioned in the form of an ointment. A greater majority of cases of mercurial poisoning have been produced in late years by the use of perchloride as an antiseptic wash for large surface wounds. The first appearance of the poisonous symptoms is usually that of a metallic taste, followed by a burning pain in the mouth, throat and stomach. If the condition goes on there is nausea and vomiting and the contents of the vomited matter contains shreds of

mucus and blood. A diarrheal condition will be present, irregular pulse, irregular and rapid respiration, cold, clammy skin, sunken eyes, and the features more or less pinched in appearance; the temperature is more or less abnormal; the consciousness is usually unaffected with more or less anxiety, restlessness and giddiness; the quantity of urine is more or less diminished and sometimes becomes completely suppressed; epithelial cast and albumin is most always present and traces of sugar in rare instances have been found. When acute poisoning occurs from corrosive sublimate salivation and stomatitis is one of the characteristic symptoms, and it seems to make but little difference as to what way the poison has entered the system. These are some of the cardinal symptoms. In chronic poisoning ulcers appear on the sides of the tongue. The teeth in chronic poisoning become loose and a gangrenous condition of the lips and gums, and necrosis of the entire lower jaw may take place. In such cases there is but little hope for recovery for there is deep seated infection and the general constitutional symptoms of mercurial poisoning has placed the general nervous system and the whole constitution in such a state that it seems quite impossible for the individual to recover from these symptoms.

(To be continued.)



## PORCELAIN INLAY.

By J. M. Thompson, Detroit, Mich.

## CHAPTER IV.

In the early days of inlay work the color problem was almost as hard to solve as the age of Ann. It has been beautifully worked out, however, and there has never been a time in the history of this work when such a variety of materials have been obtainable as at present. Anyone who cannot do fairly well with Brewster's, White's, or Jenkins' outfits is either color-blind or a bungler.

Selecting the proper colors for an inlay which is to be placed in a cavity between incisors or an incisor and a cuspid is at times a difficult matter. The matching of the color found in the tooth is not the trying part, but the overcoming of the opacity, caused by the cement and the impossibility of getting light on all sides, gives one an opportunity for study.

Owing to the difficulties already mentioned, it is generally advisable to make the foundation of as light a color as possible that will harmonize with those of the tooth, and upon this place a light enamel, building the filling nearly two-thirds the desired size. Over this the actual color of the tooth may be placed and the lighter two-thirds will overcome to quite an extent the shadow thrown by the adjacent tooth.

As mentioned in the foregoing chapter, oil colors are going to become an important factor in the work of those striving for the ideal. Let us also hope and trust that some kind-hearted wizard will produce a cement that will be free from the many faults that are necessarily present in the varieties now in use.

Those already familiar with inlay work will recognize the perplexities cited in connection with these little fillings as parts of their past and perhaps their everyday experiences. Those who have yet to obtain the knowledge required to successfully conquer such difficulties will be wise in seeking the advice and help of their more experienced friends.

Among the many opportunities presented by porcelain for dentists to show forth their inherent artistic ability, no one thing brings more of it to the surface than the restoring to perfect form and color any one of the anterior teeth. In these cases it is necessary for the oper-

ator to be able to see at times, anywhere from two to four or five colors; i. e., if one is following the method advocated by Dr. Reeves. As far as the writer's experience goes there are many places where success is not possible unless the color scheme, taught by the gentleman just mentioned, is used; on the other hand, however, many fillings can be made by simply using any one of the actual tooth colors found in the shade guide.

Much has been said by different writers about the translucency and opacity of porcelain. Things are not always what they seem, and while we may strive to produce what appears to be a translucent inlay, as long as we are up against the cement question we must own that at best our work is opaque. Natural teeth in their normal condition are translucent, and this is seen to the greatest extent in individuals of a nervo-bilious, nervo-sanguine, sanguo-lymphatic, or bilio-nervous temperaments. Taking the first and last named types for examples, we find the first presenting a tooth which is yellow at the neck and bluish gray at the cutting edge. These cutting edges generally consist of two thick plates of enamel with very little dentine between. Light penetrates such teeth only a trifle farther than the underlying dentine, but in so doing illuminates the whole which in harmony with the vital force giving luster from within outward, constitutes a thing of beauty and a joy to its owner. The last named temperament presents a tooth which generally has a bluish appearance all over. When accompanied by black hair, dark piercing eyes, cheek bones that are rather prominent, an aquiline nose, and a moderate chin, we generally find a tooth which is small at the neck, of good length, terminating in broad thin cutting edges.

While we are not discussing temperaments or pathology, there are many reasons why inlays are indicated in teeth of these types. In the first named we have one in which gold lasts only fairly well, while in the last it does not do even that; consequently we find a proper place for porcelain. Many times the question of retention will almost baffle the most enthusiastic, but the results are worth the effort.

Having described in previous chapters the manner of preparing both cavity and matrix, let us now consider what is necessary in the way of colors for the tooth containing the yellow and gray. Supposing the cavity is in a central incisor and calls for the restoration of its mesial surface down to and including part of the cutting

edge. The first thing to do is to put in the matrix a foundation of yellow at the cervical border and extending as far along the lingual margin as the same color in the tooth. This should be placed in the furnace and fused, after which enough white foundation should be put on to nearly restore the desired contour. This must be made as thin as possible, so that enough room for enamel body will be left and its presence is simply necessary as a stilt for the lower fusing materials. After this has been properly formed the laying on of the enamel bodies follows. In some instances it is necessary to commence with a dark shade of yellow and as the work progresses use lighter ones, and the same may be said of the grays. The blending of the two colors is quite a delicate thing to do and unless one thoroughly understands how it is done each color should be put on separately and fused before the other is added. This, of course, takes more time and does not produce as fine results as the blending of the colors while the powder is moistened to a proper consistency. The XX body, which is furnished with the Brewster outfit, gives to the inlay a finished and lifelike appearance which at times cannot be produced in any other way. In many instances when an inlay has been nearly completed and its color seems exactly what we desire, there still remains a lack of contour that must be restored. To use more of the color bodies would perhaps deepen the shade of the inlay to an extent that its beauty would be destroyed; but by the use of the XX which is a neutral or almost transparent enamel a much finer result is obtained. One of the little tricks, which may be of value to those who care to try it, is the mixing of a small amount of the ordinary enamel body with the XX body to produce an enamel color which will fuse at a lower temperature than when the former is used alone. There is about thirty seconds' difference in their time for fusing and in fact a very good glaze can be produced in forty-five seconds less time, so it facilitates matters at times decidedly.

When thoroughly satisfied that the contour, color, etc., is correct removing the platinum is the next step. This is generally an easy matter and in case it sticks it may be moistened with water, alcohol, or chloroform, after which it may be separated readily. If the matrix was torn during the burnishing trouble is generally experienced in removing the little ends near the opening. These are best removed with a small burr and unless this is thoroughly done the inlay will not fit as it should. In deep cavities both inlay and cavity

may be undercut, and shallow cavities may also be undercut while the inlay is being etched with hydrofluoric acid.

It is generally advisable to place the inlay in the cavity for inspection by the patient before the rubber dam is adjusted, as it never looks as well immediately after setting as it will two or three days later. Always tell the patient that as it looked in the beginning so it will after the tooth resumes its normal color. The soft wood of matches is preferable to orange wood in wedging inlays into place, as the latter is more liable to exert too much force upon the frail edges of the filling.

As a final word to all, porcelain is (when properly manipulated) the most beautiful material for filling teeth available at the present time. It is also true that some of the very best work goes wrong after it has been in a few months and does not look as well as when it was first cemented into place; but how many times does the expert gold worker see the monuments to his skill, returning with the tooth discolored, the pulp in a dying condition and the future usefulness of the crown completely destroyed. It is never an act of bravery to build oneself up by hiding behind the faults of another, but comparing the two conditions there is much to be said in favor of the inlay, as there is never as much danger of the death of the pulp when porcelain is used. Supposing the colors go wrong is it not an easy matter to try again?

(To be continued.)



# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller.

(A true story of the experience of a Michigan dentist.)

"Good morning, sir."

"Mornin' " (gruffly).

"Are you in trouble this morning?"

"Yas, somewhat."

"Teeth bothering you?"

"I reckon they be er I wouldn't be here."

"Too bad. What can I do for you?"

"What can you do? Wall what can ye do? That's what I wanten know."

"What's the matter—tooth aching?"

"Don't ache now. The dodgasted thing got riled up last night."

"Very much?"

"Well, not so very. Enough."

"Will you sit down and let me look at it?"

"Not yit. What do you think you could do for it?"

"Why, sir, I don't know until I examine it."

"How much do you charge?"

"Well, I can't tell that, not knowing what I would have to do."

"Cheap filling?"

"Not less than a dollar for any filling."

"How much for pulling it?"

"Fifty cents. That seems to be the price down here in the country. I always got a dollar, sometimes two, in Detroit."

"Yas; wall, this ain't no city and you don't git no dollar er two fer pullin' teeth herè."

"Do you think the tooth should be extracted? Why don't you let me look at it and see."

"Yas, I will when I git ready."

"All right, then you will excuse me if I attend to my work, as I have a case I must get ready for this afternoon."

"Yas, well I guess you better git through with me first."



"Certainly; I'm ready to serve if I can, when you are ready. Will you be seated?"

"Don't you git in no stew, young man. Yew ain't here to put on no airs, I reckon."

"No, sir; I'm here to serve you if I can, but I cannot spend too much time about it as I have other work to attend to."

"Yew have? Rushed all to pieces I s'pose? Yes. Wall, I'm not buyin' no pig in a poke. If you fill this tooth it costs me a dollar? Do you warrant it will stay and won't ache?"

"I can't tell anything about it until I have a chance to examine it."

"It's a good tooth all right. I hate to pay a dollar, though, fer cooperin' it up when it on'y costs 50c to pull 'er out. Well, take a pike at it. None on yer jabbin' in ter the nerve, now."

"If the nerve is exposed I don't think it would do to fill it without first destroying the pulp."

"How much?"

"It will cost two dollars to destroy the pulp, two more to fill the root and a dollar for the cavity filling of amalgam."

"Yas. Wall you can't work no dodge like that on me. I'm on to yer scheme. Huh! I wouldn't pay that much fer any tooth I've got, n'r any two."

"Well, I should say Mr. ——."

"Baldy, sir. Baldy. Old Erastus Baldy, by Gad. Yes, sir. It's a wonder you wouldn't know me. One of the oldest residers in this ere town. Who am I? Gad! You'll find out if you try any monkey capers on me. Baldy, sir. Erastus Baldy, and don't you forget it. How long you been here?"

"Well, Mr. Baldy, I have not been here very long; about eight months. I've heard of you, but never had the pleasure of meeting you before. You own a good deal of property here?"

"Yew bet I dew. Yew bet I dew; and you bet nobody gets none of it 'thout earnin' it."

"Well, Mr. Baldy, the tooth don't look to me decayed enough to need anything but filling. However, if it has ached some I don't believe I'd put anything but a cement filling in and let it go for several weeks or perhaps months, if it don't give trouble. If it aches after the cement is in, why, there is only two things to do; kill the pulp, take it out and fill the root, or take the tooth out. It certainly is too valuable a tooth to extract."

"I reckon I chaw more on that un than any other when 'tain't sore. Do you warrant that it don't ache, and do you warrant your filling to last.

"No, sir; I can't do that any more than a doctor can warrant that he'd cure appendicitis."

"Well, I don't want no warrant to cure 'pendicitis. I haven't got none. I want you to do a good job on that tooth. B'gosh you oughter warrant it fer ten year, chargin' a dollar fer puttin' in a leetle putty."

"I am here, Mr. Baldy, to render you the best service I can to relieve you and save the tooth. I cannot warrant anything like that. I'll do the best I can and you'll have to take the chances. You let the tooth get in bad shape. I'm not to blame for that. I can't take your misfortunes.

"Let the tooth get in bad shape? Me let it? H——! the fust thing I knowed about it it tuned up one night and kept me awake. And b'gosh if I'd been anywheres near ye then I'd a had 'er out durn quick. Me let 'er git bad? What 'd I have to do with it?"

"Well, I certainly had nothing to do with it; and all I can do now is to do the best I can under the circumstances. It may fix it all O. K. and continue it good and useful and it may not. The nerve, as you call it, may have become diseased and gone on to a stage that it will not repair under any treatment. In that case to save the tooth the pulp must be extirpated and root properly treated and filled."

"Ye needn't be repeatin' that, tryin' to work up business, fer I'm no greenhorn."

"Do you want to save the tooth?"

"Do I want to save the tooth? What the —— do you think I'm here fer?"

"Well, to tell the truth, Mr. Baldy, I don't know. I'm tryin' to find out."

"Well, you go ahead and put some of yer durn putty in there and if it don't do right you'll hear from 'Ras Baldy, you bet. No one ever tried to do monkey capers with me that didn't get their pay with compound interest."

"I'm not here to play any monkey capers, Mr. Baldy, but to try and do you as good service as any other man can do, but you've got

to take the chances. It is your misfortune if it has got so far along as to give further trouble."

"Stop yer darn gab and tend to that tooth. I've been here long enough now to have had a dozen filled. You'll get yerself disliked in this town if yew ain't careful, like that other damphool dentist down the street. He's got his fill of old 'Ras Baldy, you bet! Now, you durn critter, don't you hurt me. Sons of Malta! What dew you mean? Don't run that buzzing thing in there again. Sufferin' Moses! Now what have you got? Don't gouge that in there any more. You ain't any better'n that other grafter. Take that durn cotton out of my mouth. What do you want to wad that 'ere stuff in there fer? Quit stretchin' my mouth. Say, but you are a butcher and a durn clumsy one at that! Break loose, I want to spit. For ——— sake ain't you done yit? That's the d——est lot of fuss I ever heard of to put a little putty in a tooth. B'gosh I c'd put it in with my finger ten times quicker. Had to get decay out? O, yas, of course. You got that out the fust thing and then you went to makin' the hole larger in hard tooth. O, I c'd tell just what you was doin'. You can't fool your pap. Not this week—some other week. And you want a dollar fer that? I'll bet yer hull bottle didn't cost ten cents. There's your dollar, but I feel I've been bunkoed out of about seventy-five cents. If this gits to achin' you'll hear from Old 'Ras Baldy. Go on now and shet yerself up with yer conscience awhile, if you got any, for chargin' a dollar.

NEXT MORNING, DAYBREAK.

"Say, you measly pumpkin head of a dentist, you git that tooth out 'bout as quick as you know how, and I am liable to smash your face inter ther bargain. Yew knew durn well, that tooth was going to raise h—— all night, and it did, but yew wanted ter git yer dollar. We'll, discuss that later. Hook on and don't hurt. Wow! wow! wow! Whew! You went at that as though I was an old tough knot that had no feelin's. Well, it's out. Now, sir, how do we stand?"

"You owe me for extracting."

"Owe you? Well, that's gall. Owe you? Why, you nervy cuss, you owe me fifty cents. Didn't I give you a dollar yistiday? Blast your picture, where's my tooth now? You pulled it out an' yer putty fillin' with it. You'd like to charge a dollar fer pullin' but you said the price was fifty cents. Dern your picter, give me back fifty cents."

"No, sir, Mr. Baldy, it was distinctly understood that I would put in that filling at your risk, trying to save your tooth for you, and I'm entitled to my fee for extracting. But, since you had so much trouble with it and to do more than is right, we'll let it go. You owe me nothing and I trust you will go now and not worry me any further. Ten dollars would not compensate me. No, twenty would not tempt me to go through another seance with you. Please go now, I have another patient waiting."

"And you refuse to give me back a half dollar? Well, you measley swindlin' cuss. I'll get even with yew. I can knock a good many fifty cents away from you—a fifty-cent swindler. B'gosh I'm a mind to go out and sue you for swindlin' and malpractice. You won't never hear the last of this. Old 'Ras Baldy don't never let up on anybody as has done him a wrong. You'll hear from me regular every day. I've got money enough to swamp you in business. I could push your face in d——n ye," and suiting the action to the word he pushed his fist under the dentist's nose causing him to step back a pace. He repeated it several times after warnings to desist. This man thought he owned the town and could do as he pleased. He had money and was tolerated though generally disliked and despised for his penuriousness and disagreeable manners and talk. He pushed his fist once too often under this quiet little dentist's nose. Something dropped. Something went out of the office on hands and knees not finding a good opportunity to stand erect. Something tumbled and rolled from the top to bottom of the stairs, got on its feet and ran for home, though nothing pursued. The dentist said naught. But a waiting patient had a tongue. Congratulations and business followed, and Old 'Ras Baldy passed by on the other side and never referred to the matter again. Some country characters are queer specimens of humanity.

(Continued next month.)



## PROCEEDINGS OF SOCIETIES

PROCEEDINGS OF THE IOWA STATE DENTAL SOCIETY,  
HELD AT SIOUX CITY, MAY 5, 6, 7.

(Continued from page 55.)

### DISCUSSION OF PAPER BY DR. SCHWARTZ.\*

President Bandy: I see by our program that we have Dr. Vance of Ottumwa to discuss this paper, also Dr. Hosford. Neither is present, so will call on Dr. J. B. Pherrin of Central City. We will hear from him.

Dr. Pherrin: Mr. President: Inasmuch as I was not here to hear the opening of this paper, and have not seen the clinic, and inasmuch as we are to have the clinic this afternoon, I think it would be in order that this paper be discussed at the opening of our session this evening. I believe it could be discussed better at that time. I confess that I am one of those who have not done all of the different things in dentistry. It is very common for dentists to say, "I have done that for a long time." I confess I have not done this class of work, and I would like to see more of it before I pass an opinion upon it. Therefore, I move that we discuss this paper with the discussion of the clinic this evening.

I would be very glad to have it discussed then, but Dr. Schwartz is obliged to leave this afternoon. He has stayed over one day longer than he expected to, so I am afraid we cannot make a success of the discussion without his presence.

Dr. Gormly: We have Dr. Brophy with us. We will be very much pleased to hear from him.

Dr. Gormly: I would like to hear from Dr. Shriver.

Dr. Pherrin: I withdraw the motion in that event; but the greater portion of this discussion must fall on men who are better acquainted with this form of work. I notice by the models that it is a very nice piece of work. I believe there is a great advantage in its being more comfortable to the patient because of the small amount

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\*Dr. Schwartz's paper appeared in the January, 1904, issue.

of mucus tissue that is covered by the denture and the stability of the plate which the Doctor gains by this clasp. I have no criticism to offer other than this: It occurs to me that in taking an impression of a tooth in position in the arch and the mucus tissue, I doubt whether there is an equal pressure brought to bear on that tooth and on the mucus tissue; whether or not the mucus tissue would sustain—would bear its share of the weight of the denture. The little lug that is brought over into the fissure of the tooth seems to me would throw the greater portion upon the one tooth, or upon the several teeth to which it is clasped. Which, I believe, in clasp work would be too great a strain on one tooth or on two teeth. Now that may or may not be a fault. I only raise that question as it occurs to me here on the spur of the moment, and I must confess to Dr. Schwartz and the dentists present that I am not capable of discussing this paper as it should be discussed. I am sorry I have not been able to study it more. I am aware that there are a great many cases that require a clasp to hold the denture in position. It is a great advantage if a patient can retain one or more or whatever number is possible of the natural teeth to assist in holding the denture in position, for we find some that are unable it seems to retain the full denture. It seems to be a great satisfaction to them, and I think they are the ones to judge. I know that a great many find satisfaction, therefore, we must give the credit somewhat to the patient for directing us in that regard.

Dr. A. O. Hunt: Mr. President, Ladies and Gentlemen: I think that this paper better be discussed after the clinic. From investigation of this model it seems very satisfactory in every way and very practicable. Dr. Schwartz is to be congratulated; he is very ingenious in many ways. The expression made a few minutes ago I heartily sympathize with; that is in cases of this kind it is much more desirable to have something that can be removed. I think that the time is coming, as I have looked for it to come, that we shall gradually become more conservative in the use of artificial appliances of all kinds. I think that bridge work perhaps in many cases is used where partial plates or some other appliance is more desirable. I have watched the successes and failures of bridge work a long time. Even in the early times I felt that we were doing too much in the line of bridge work. This restoration is very good and very practicable indeed. This piece that I have in my hand is the restoration of the gum portion. In the ordinary cases of

bridge work it could not have been done. It is a very common thing indeed to find cases where in the lower teeth, at least the gum tissue becomes absorbed to such an extent that in the usual way you cannot get good restoration, and this method simply fills up that gap nicely. I want to compliment the Doctor. I have seen many of his models and they are always good.

Dr. Lewis: Mr. President, I have not been able to see the last model myself, but have had the pleasure of listening to the paper. In the dental colleges too frequently stress is laid on bridge work, and a great many men who have graduated in recent years from the colleges have felt that they can do more in filling up the parts with bridge work than by any other method. These partial plates with clasps, as the Doctor has said, fill a field that is entirely separate and distinct from that filled by the crown and bridge work. In a majority of instances it is very difficult for us to use bridge work which meets the conditions as they should be met. There is one point, gentlemen, that I hope you will not consider a hobby of mine, because there are so many men who believe the same thing, and that is, that it is almost impossible to properly prepare any of the posterior teeth so that you can crown them and leave them in a perfectly normal condition. We often do a great deal of damage to the delicate structure of the periodontal membrane, and one of the greatest arguments in favor of an appliance of this kind is, that while you restore the lost parts it is not necessary to injure the teeth to any great extent.

Dr. Miller: Dr. Schwartz has a piece of work that will stay in place as long at least as the clasps are not worn, and he has the advantage of a clasp that can be readjusted after it does wear. He has another advantage, and that is, that his fittings do not go on straight, though heretofore we have always thought that a movable plate to be held in place had to have the fittings absolutely parallel. They have gone so far even as to make an appliance to set the fittings absolutely parallel, which I think is a great mistake. I always make it a point to know that they are not parallel before I set them. The reason is that if the fittings are absolutely parallel, just as soon as the least bit of wear comes they drop, especially in an upper case; the lower case does not make so much difference. The only objection that I find with this case—whether it was intentional or not I don't know on Dr. Schwartz' part—is the fact that in this right fitting he has space enough between his plate so that when it is on,

the food will crowd up between the plate and the tooth under the gum. If it fitted any tighter it would not go on. Now he has another advantage in this yoke. If it should become worn he can bend the yoke as well as the bands to hold it. The one great objection to this, in my opinion, is, that if the lower teeth should occlude with this to be of any benefit the edges of the bands would be worn and battered in a little time so that it would be necessary to **refinish** or change the surface of them. I have been making these pieces with the fitting entirely enclosed with a crown, so that it takes up no more space in the mouth than an ordinary crown. For instance, I would make another crown attached to the first bicuspid with an inside fitting, a double one, the outside fitting made within the second bicuspid so that it is entirely out of sight, and there are no joints or places to collect food, and if at any time the wear needs to be taken up, the inside edges of the band are bent in on the outside fitting. I used to make the inside fitting attached to the bicuspid of an open band, then if the wear commenced I would bend them together. I found my mistake in a short time; in a year and a half or two years those bands twenty-six gauge have worn away. In fact I have one case now where they are worn away, and the man wears the plate the same as any one would wear a loosely fitting rubber plate. Dr. Schwartz surely has a case that will stay in the mouth and that can be changed. The objection to this yoke is that it takes up room in the mouth, and for a while at least that would be an objection. It is a very neat case. There are some cases that I think would not be so serviceable, and especially where you had two bicuspids on either side and no teeth front or back. If I were making that case I would surely make a double telescope fitting over the bicuspids with a double band on the left side. It is a very nice piece of work, and I want to compliment Dr. Schwartz on his ability to work in the precious metal.

Dr. Brophy: Unfortunately I came into the room when the paper was almost finished. Still more unfortunately I have not been able to see the models, so I have not very much of an idea as to the subject before the house. I can say this, however, knowing Dr. Schwartz very well, that when he undertakes to do anything, or when he goes before a convention to show anything, you can almost take it for granted that it is good. Hearing what I have from the discussion since I have been in the room, and judging from the model as I see it now, this idea is one that meets with my most hearty ap-



proval. I agree with Dr. Hunt that plates of this order might very frequently be used to better advantage and with better service to the patient than bridge work, for very many reasons. The principle of the work as I see it here I approve of very heartily. I think if the cases that come to us are studied, very frequently we will find it possible to use the little removable plates of this order to very great advantage.

Dr. Gorniley: I would like to hear from Dr. Shriver.

Dr. Shriver: I think that this kind of work in some instances is very fine, especially when you have a loss of not more than the four anterior teeth; with six the stress on the bridge would be too great, especially if bridged from bicuspid to bicuspid. As to Dr. Schwartz' ability as a manipulator he is very fine; probably many of us would not be able to do as well with this method of putting in porcelain crowns. Also from an artistic point of view it is very fine. His method of binding to the lingual surface is something that I have never seen in that way before. In this case I think it is superior to the method of crowning a tooth. As far as the cleanliness of the bridge is concerned we all know that an anterior porcelain bridge is very cleanly; but I would not recommend it to any great extent, on account of the weakness of material used in its construction.

Dr. Schwartz: My experience is that the wear you get with a clasp without a lug or stop of some kind riding on the tooth has a tendency to wear the tooth out and make it decay more readily with the clasp put on that way than it will any other way, and the plate will have a tendency to ride up and down. In setting the plate in that manner you are apt to wear the other teeth. I keep my plate far enough away from the other teeth not to wear them. A loose tooth needs more support, and ought to be held as firmly as it can with a close fitting clasp with a stop so that it will not wear the tooth.

Dr. Woodbury: To get this plate on it seems that it must be sprung something like one-sixteenth of an inch or so to get it down. I will tell you a method that is much easier than that. You start one on first and then turn the other one right on, and clasp it right in place, taking up all the spring that you would naturally have there. It looks here as though it had to be sprung to get it down properly.

Dr. Schwartz: No, I don't think that that is the case. It goes on as this model will show. It has been on two or three times and I have never had anything occur like that. This is a duplicate of a practical piece of work, and the patient has worn it satisfactorily

and successfully. Possibly there was so much spring in the one worn by the patient that may be owing to the way I set those teeth in the impression. You see I made these out of the mouth and put them down in this impression, and then took these out of the mouth and set them in, and I guessed as nearly as I could. I may have gotten that tooth a little too low in the impression. The crowns are made with the view that they draw straight in the mouth, and in the mouth they can always be remedied should you make a mistake and get the crowns made so that they don't draw straight and correctly. You should, if you fail, make new crowns, and have them draw straight up and down as nearly as possible, but I have not yet had a plate act badly for me.

Dr. Woodbury: Suppose you were going to fit to the bicuspid where the teeth are in close contact. How are you going to clasp a tooth of that nature?

Dr. Schwartz: I would make separation between them this way: I suppose you want to know how I would separate the teeth. I would separate and get space on either side and make my clasp just the same, but getting my space by separation. I would not destroy any of the contour of that tooth; I would not cut with the disk but I would separate on either side. If I were to separate a bicuspid tooth the probability is—I suppose you mean a clasp like the one which I showed in this case—whichever side I decided to use I would get separation until I had space enough by the usual means of separating.

Dr. Schwartz: Mr. President, Ladies and Gentlemen of the Society: I feel very grateful to be handled as easily as I have. I was of the opinion that Dr. Miller would try to tear me all to pieces. I understood yesterday that he was the kind of a man who sought for the truth and who was a scrapper, and I wanted to have a theoretical tussle with him. I am afraid he has disappointed me. I was in hopes he would find weak places and teach me. After hearing the many pleasant things that were said here yesterday by the members of the society, and being surprised at the way the opening exercises were conducted, makes me very proud that I was born in the state of Iowa and that I am a graduate of the University of the State of Iowa. I will first answer the doctor that spoke of the bridge from cuspid to cuspid in the upper jaw. Now we all know, if we have observed carefully, that a heavy stress occurs from the occlusion against the case; that if there is the least bit of tendency

of the teeth to become loose or for pyorrhea to appear that after four or five years these bridges have become so that they protrude, and you will find where the cuspid has at first been close up against the bicuspid that there is quite a space between those teeth later, and the tendency is to push the bridges forward. I believe in a great many cases of this description that a piece of work of this kind, the four teeth out in front and attached to the bicuspid teeth in a manner similar to this, whether it is Dr. Miller's method or any other method, I think in the majority of cases it is preferable in the long run to putting in a bridge. There are cases that are not especially adapted to this, but in a great many cases they are, and the other way you loosen the cuspids and destroy the characteristics of the face and the cuspid tooth, and I don't believe any man in the house will disagree with me on that. And after I get through and have closed my discussion, I would like Dr. Hunt to say one or two words about cuspid teeth. Now then about the space for food. I feel that I ought to apologize even with as many compliments as I have received. This piece was done hastily. I had not touched a thing to it until Sunday morning at ten o'clock, and I was in here Wednesday morning, and I had to get ready Monday night for the train, and so I did every bit of this work and made this case all since that. I could pick it all to pieces myself, gentlemen, if it were in a clinic by myself or anybody else. Dr. Miller was right when he spoke about the yoke; I could do it better than it was done, and if I were doing it in a practical piece of work and in a practical case I would do better. It was the method I wanted to show. It is not to show the detail; it is to show the method only.

Dr. Woodbury: The Doctor says he scrapes his models to get a little bearing. I would like to know how he manages to scrape his models equally.

Dr. Schwartz: I scrape where it touches the model; I scrape the cast, the margins of the cast; scrape the cast where the plate is to have a bearing so that food will not get under. I know that this plate will seat itself and be correct. I can't stand here and tell you scientifically why those things are so, but I can say that they work the way I say they do in my practice. I know men who are too theoretical to be practical, but I believe I am too practical to be theoretical.

## TALK BY DR. HUNT ON THE CUSPID TEETH.

Mr. President, Ladies and Gentlemen: I can say in a few minutes all there is to say about the cuspids. Most of you have heard all I have to say. A gentleman sitting back there just now said to me that the cuspid tooth was the only tooth in the jaw that finds its place in the jaw; that is, that it is the least likely to be out of place in the jaw. This is true, and there are many reasons for it. The cuspids must come into position on account of the position that they occupy, starting from near the side of the nose coming down into position between the elevator of the lip and also the elevator of the nose, and coming down in a groove with both of the muscles on each side; it can't get out of its position aside from the natural tendency that all teeth have to go into a normal position. That is particularly true of the cuspids. In nearly all cases of irregularities you will find that the laterals or central incisors may be thrust out of position, but the cuspids in their efforts to grow in normal position will force all the other teeth out of position. Now another reason which to my mind is a most prominent one for preserving the cuspids: Running over the canine eminence are the muscles of expression. No muscle of expression can move without they all move, and when any of them move the motion is over this eminence, just the same as a certain number of ropes run through a pulley. Now the moment you lose the cuspids, just as soon as they are gone, something is gone which controls the expression of the whole face. Sometime when you are extracting a cuspid tooth, or have to do it, watch the change in the face just the moment you remove that tooth from its position. Now in making artificial dentures of all kinds we have endeavored always to bring back to the mouth that restoration of the canine eminence. We can't do it only to a limited extent, because the eminence extends completely up under the alley of the nose. There is nothing to carry it as high as that, and in artificial dentures especially we can't carry it much higher than is commonly done. I often illustrate this by the story of the man building a house. He wanted to raise the wall, foundation wall, and still he wanted the house to look well. He went to a contractor and asked him how high he should build the wall. He said, "How high do you design building it?" "Well," he said, "I thought if it stood about three feet above the surface it would be high enough." "Well," he says, "when you decide on the height you want, then raise it a foot and your house will look better." It is just so in this;

in trying to restore this canine eminence. When you have it just as it should be carry it up a little farther. It is an impossibility for us to restore completely the expression of the face, because we cannot restore this canine eminence, and the cuspid teeth and every tooth in the mouth every means should be resorted to to keep them intact as they are through life if possible.

Dr. Woodbury: I don't know that I have very much to say Mr. President. Dr. Schwartz has demonstrated this method with a gold plate. I would like to say that this method is also applicable to rubber work, where you have patients that cannot afford the gold work, you can use the vulcanized plate to very good advantage. I have never used this method, but I have used something very similar and used it very successfully. I would like to ask Dr. Schwartz in case we have a tooth that we want to put a clasp around if it would not be better to leave the clasp on altogether where it is necessary to use it at all?

One more word: I would like to ask in cases of this kind about what must be impressed upon the patient. Now I think in the clasp work and cases of that kind that much of the trouble is due to the lactic acid, and the patient must be requested to keep the plate absolutely clean, and I usually tell them to put it in a strong solution of soda water to correct the lactic acid. I think that, that is a part that should be thoroughly impressed upon the patient at the time the plate is put into the mouth if it is going to be satisfactory afterwards.

Dr. Schwartz: Answering Dr. Pherrin's question about the equalization of the distribution of pressure on the tissue and the tooth; we all know, in regulating teeth that you can pull the teeth down or push them up. The same adjustment takes place in putting in clasp plates. The model is scraped first at the points where they bear, and the distribution of the pressure is made equal. That is, this plate acts as a saddle; you get support from the gum, and the clasps are firmly in place on the teeth; that being the case, everything adjusts itself in a short time. The pressure on the gums and the teeth that are supplied—that is, on the gums by the teeth that are supplied in the spaces—has a tendency to keep those teeth close up where they belong, just the same as a tooth can be pushed up or down in regulating them. In the years that I have been making these plates with lugs on the clasps, the distribution of the pressure is equalized, and I find it is practicable; I think this work in the

majority of cases similar to this one is more practical than bridge work.

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## A SCIENTIFIC INVESTIGATION TO DETERMINE THE VALUE OF GUTTA-PERCHA AND CEMENTS TO PREVENT THE PASSAGE OF INFECTIOUS MATERIAL.

By Geo. W. Cook, B. S., D. D. S., Chicago, Ill.

Ever since the investigation of spontaneous generation was begun in a scientific way by such men as Tyndall and Pasteur, various means of determining the best methods of sterilization and the retention of substances from becoming contaminated with the bacteria of the air, and such other infectious materials as would enter into and infect certain neutral sterilized material.

Various mechanical means have been tried with the hope of obtaining a perfect mechanical barrier for the prevention of the passage of bacteria. It has been found in the cultivation of micro-organisms that perhaps cotton is one of the surest and most efficient means for the stoppage of micro-organisms, especially where it is free from moisture; but as is well known cotton has its limitations and cannot be adopted except in bacteriological laboratory work.

Since it has become a well-recognized fact that dental caries is a micro-biological process, various means and materials have been tried, some have been adopted, others have been discarded according to their inefficiency or appropriateness for the excluding or preventing the entrance of bacteria and their action upon the hard or soft tissues, as the case may be. Through a more or less crude or empirical practice certain means and materials have almost become universally adopted as barriers to the entrance of bacteria into tooth structure, and passing through into the cells and tissues where the physiological activities are more active and the liability of establishing greater pathological activities; thus rendering part or certain organs incapable of carrying on the functional activities of the part in a normal way.

Some of the materials that have come into almost universal use for the prevention of infectious material entering tooth structure and causing the well-recognized phenomena of disease is gutta-percha and the cements.

My purpose in this paper will be to give you the results and some

conclusions of a series of experiments carried out to determine the value of these two agents in fulfilling the mission that they are so universally used for. In 1896 and 1897 I made a few experiments, and at that time came to the conclusion that the reliability of the manipulation and mechanical adaptation to such material as glass or porcelain was of such uncertain character as to render the work unvaluable and not worthy of publication, consequently the subject was dropped until something less than a year ago when A. E. Webster of Toronto, Canada, announced to the profession that these materials had practically no value as barriers to bacteria. I again took up the work in a more thorough and systematic manner, adopting some of the methods used by Dr. Webster, and devising some means of my own. The first series was by taking the ordinary test tubes and placing in each tube about 10 c.c. of beef bouillon, stopping the tube in the ordinary way with cotton, and sterilizing three successive days so as to render the tubes free from infectious material.

Each tube was then taken between the thumb and forefinger of each hand, and in a slanting position was revolved in a blow-pipe flame, until the glass tube had been softened and until it could be drawn out to a fine capillary constriction about midway between the bottom of the tube and the mouth; then with all instruments well sterilized by heat, the mouth being thoroughly sterilized this capillary constriction was filled by pumping first chloro-percha, allowing it to evaporate to a very thick consistency; then with a warm gutta-percha plug it was forced into the constriction with as much pressure as the constricted portion of the tube could bear. The cotton stopper was then replaced and the tube set aside for something like an hour, when the chloro-percha had had ample time to become almost solidified, when another treatment was given this tube, by placing more chloro-percha and with another pellet of warm gutta-percha, it was again packed and the tube was again set aside until the chloro-percha had again become solidified. The cotton stopper was again removed from the tube, and 5 c.c. of infected bouillon was placed in the upper portion of the tube. The tube was then laid in a slanting position in the incubator so that the infected bouillon was in touch with the upper portion of the gutta-percha filling, and the lower portion of the filling come in contact with the sterile bouillon. In this first series of twenty treated in this manner with the greatest possible antiseptic precaution, the first twenty-four hours there was

no infection; forty-eight hours no infection; seventy-two hours no infection; the third day no infection; the fourth day one tube showed signs of infection. A cultural and microscopic examination showed that this tube was infected with the micro-organism that the bouillon in the upper portion contained; but the germ had taken on some morphological changes, and when transferred to fresh bouillon did not grow in the luxurious way that the culture from the control showed. On the sixth day there appeared a growth in another tube; on the tenth day the third tube had a growth. By the fifteenth day the culture media containing the infection in the upper portion of the tube was considerably evaporated, and 5 c.c. of sterile bouillon was added to the remaining tubes that had not become infected in the lower portion. On the fifth day after the addition of fresh bouillon two more tubes became infected; on the tenth day after the addition of fresh bouillon, one more tube became infected. The remaining thirteen of this series stood thirty-eight days with occasional addition of sterile bouillon to the upper portion of the tube; when another tube became infected. After an observation of fifty-one days the remaining tubes were found to be sterile in the lower portion of the tube.

The second series was prepared in a similar manner to the first, as regards the sterilization of the bouillon and the drawing out of the tubes, and all were in a similar manner to that of series No. 1. Five tubes were filled with a certain kind of cement, the cement being mixed in a way that is usually followed out in practice, with the exceptions that the glass slab and the spatula were thoroughly sterilized. The constriction in the tubes was filled in the usual manner by pumping cement in the capillary portion, and then with a pellet of cement that had been mixed to a thicker consistency and with all the force that the tube could bear the cement was forced into place. These were allowed to dry for about two hours, and 5 c.c. of infected bouillon was placed in the upper part of the tube as described in series No. 1. On the following day two of these tubes filled with a certain make of cement were found to be broken, the cause which was afterwards found to be due to the expansion of the cement. The other three tubes of this same kind of cement prevented infection for twenty-two days, when it was found that the cement had to some extent undergone disintegration. Of course it must be understood that there had to be added fresh bouillon to these cultures from time to time; for the micro-organism will use up



a great deal more than 5 c.c. of bouillon in twenty days, especially if their vegetative physiological activity is kept up to its highest possibility. In another five tubes of this series filled with a certain make of cement, on the third day one tube was found to be infected, but the infection was not with the micro-organism that the bouillon was infected with in the upper portion of the tube, which showed that an accidental infection had been produced. The other four tubes of this lot stood for ten days, when one became infected with a germ in the upper portion of the tube. On the fourteenth day all the tubes had become infected except one.

It might be well to state right here that in these tubes after the infection had taken place in the lower portion, a rapid disintegration of the cement took place with this particular kind of cement. In the next lot of five of series No. 2, filled with another make of cement, two became infected on the third day; the other three remained sterile for twenty-seven days—when another became infected. The other two remaining sterile for fifty-seven days. The fourth lot of series No. 2 filled with another make of cement, one became infected on the fourth day, while the other four remained sterile for forty-three days—when the second tube became infected. On the forty-ninth day the third tube was accidentally broken. The other two tubes remained sterile until the sixty-first day, when both were found to be infected.

In series No. 3 twenty-two were drawn in the same way after having been filled with sterile bouillon as described in series No. 1. The constriction in ten tubes were filled with chloro-percha pumped in in the usual way, and a cone-shaped gutta-percha point which was forced in the constriction with all the pressure that the capillary tubes would contain. The tubes were allowed to dry thoroughly for about two hours. When the chloro-percha was found to be pretty thoroughly evaporated, a good-sized filling of a certain kind of cement was mixed to various consistencies and placed over the gutta-percha filling; a moistened pledget of cotton was placed in contact with the cement. After it had become fairly well hardened, infected bouillon was placed in these tubes in the manner above described. One tube was found to be infected on the fourth day, while the other nine tubes remained sterile for fifty-eight days; when by taking a sharp instrument a groove was found to be forming between the cement and the walls of the tube, which showed that the cement was undergoing a progressive disintegration. Of the other ten tubes of series No. 3,

five were filled with oxyphosphate of copper and treated in the manner above described. The infected bouillon showed very little signs of growth, and on a microscopic examination of the bacteria in the upper portion of the tube, it was found to have undergone morphological changes, until it was suspected that a mixed infection was present and necessitated the transferring some cultures to a sterile nutrient media, where they resumed the original type and proved to be the same organisms that the bouillon had at first been inoculated with. The lower portion of these tubes did not become infected for over sixty-five days. The other five tubes in series No. 3 were filled in the constricted portion with oxychloride; one of these was found to be infected on the fourth day. On the seventeenth day the second tube was found to be infected; on the nineteenth day the third tube was infected, and on the thirty-first day all the tubes were infected. The fourth tube was infected on the twenty-seventh day; the fifth on the forty-ninth day.

In series No. 4 the experiments were carried out in the following manner: In small test tubes, the capacity of which was about 15 c.c. was placed bouillon which was approximately 5 c.c., and stopped in the usual manner with cotton and sterilized three successive days. In very much larger test tubes was placed about 20 c.c. of bouillon and sterilized in the usual manner. The mixing slab for the cement and the spatula were thoroughly sterilized by heat, and the mouths of the small tubes were thoroughly sealed under aseptic precaution with various mixes of cement. These small tubes were then placed in the large tubes containing the 20 c. c. of sterile bouillon, and they were placed in the incubator. The first ten tubes were stopped with a particular kind of cement and allowed to set before placing into the large tubes. Two out of the ten were found to be infected on the second day; one on the third day; seven tubes were found to be infected on the eighth day. Three tubes were found to remain sterile, when one of these had become infected; two remained sterile for sixty days. The other ten tubes in series No. 4 were stopped in the manner above described with another make of cement, and placed in the large tubes after the cement had thoroughly set. It was found on the third day that three of these tubes were infected; by the eighth day all the tubes were infected.

Being somewhat astonished at the remarkable differences in these two cements, I had a long conversation with Dr. Ames, who gave me some very valuable information in regard to the mixing

and setting of cements. I then again took ten more tubes and stopped the mouths in the manner above described, and with moistened cotton wrapped around the cement until it had thoroughly set; they were then placed in the inoculated bouillon. On the third day one tube was found to be infected, and on examination it was found that there was a defective place between the edge of the tube and the cement stopping. The other nine tubes are still in the infected bouillon. After twenty-seven days ten tubes were stopped in the manner above described with gutta-percha. After heating the gutta-percha and the mouth of the tube being passed through the blaze several times, the gutta-percha cap was placed over the mouth of the tube and a heavy coating of chloro-percha was wrapped over the entire cap and around the neck of the tube. These were placed in the large test tubes in the manner above described. On the third day one of these tubes was found to be infected; on the fifth day a second tube was infected. The other eight tubes have remained in the infected bouillon for twenty-seven days and are still sterile.

Experiments in series No. 5 was to determine if possible if moisture or infectious material would pass through thin gutta-percha bags. Some small bags were made of gutta-percha and from 2 to 4 c.c. of infected bouillon was placed in these bags and thoroughly sealed up. They were then dropped in test-tubes containing sterile bouillon and allowed to remain eight days. One out of ten became infected. The bags were then taken out of the sterile bouillon, opened, and cultural and microscopic examinations were made, to find that all of these contained the same micro-organisms that had previously been placed in there.

One very interesting fact observed in the use of chloro-percha in connection with the pure gutta-percha is, that it should be allowed to set entirely free from moisture. After the first application was thoroughly set an additional application of the chloro-percha should be made in the way above described, by adding chloro-percha, and then with a warm piece of gutta-percha packed thoroughly so that the space that had drawn away from the walls can be refilled. I need not say here that it is a well observed fact that chloro-percha contracts during the process of evaporation. The pure gutta-percha itself contracts very slightly when heated and placed in contact with a glass tube that is at room temperature, but if the tube is kept at

the incubating temperature I could not detect any contraction; this was determined by using certain aniline dyes.

In series No. 6 I used oil of eucalyptus before placing the chloro-percha and the gutta-percha plug, as above described. It was found that by the tenth day the sterile bouillon in the lower portion of the tube had become infected. It might not be out of place to say here that gutta-percha dissolved in eucalyptus will undergo a much greater contraction than it will when used with the chloroform plain. A series of ten tubes were treated by dissolving gum sandarac with alcohol, and then varnishing the constricted portion with this agent; then with the chloro-percha a small quantity was placed in the constricted part, and the gutta-percha plug was forced in as above described. These tubes prevented the passage of bacteria for a great deal longer time than did those treated with eucalyptus. In another series of experiments, I tried the process of etching the glass or roughening the surface, and found that the chloro-percha did not contract or draw away from the surface of the glass as it will upon the smooth surface. I am of the opinion, however, that a perfect mechanical stopping from the passage of bacteria is possible with chloro-percha in connection with gutta-percha, but that, I think, is very seldom accomplished. As for the cements I think it depends almost solely upon the mixture, the presence of moisture, etc.

Under the title of "disintegration of cement fillings" is a paper by J. E. Hinkins of Chicago and S. F. Acree. There is to be found some very interesting facts as regards the chemical action of both acids and alkalies on the chemical disintegration of cements.

There is one fact to be borne in mind in this connection, that many forms of bacteria are capable of disintegrating almost any substance when they are in constant contact and well supplied with nutrient media. This is called a catalytic action or action by contact. Hinkins and Acree called attention to the fact that bacteria and their products have a considerable chemical affect on cements. There is no question but what the dissolving away of cements in the oral cavity is accomplished almost entirely by certain forms of micro-organisms and their products, and that such process would take place more rapidly in test tubes than it would in the oral cavity.

I have here in as brief a manner as possible given you the results of these experiments. There are a great many interesting observations with this kind of work that has not been worked out in detail.

One is the expansion and contraction of cements, and under what circumstances such changes are brought about.

I found that the mixing of a certain kind of cement to a certain consistency that it would expand to the extent that thin glass capillary tubes would be broken. This action occurred within a few hours after the mixing of the cement, while this same cement mixed in the same identical manner would expand quite considerably. The same batch in a course from ten to fifteen days would expand quite considerably. The same batch in a course from ten to fifteen days would contract so that with little jarring it would easily slip out of the tube in mass. When it is taken into consideration that the making of a cement for the purpose of filling teeth is purely a chemical process, and the chemical combining of these two agents is accomplished by definite and fixed laws, and that the slightest variation to the one-hundredths of a degree this law would necessarily change the chemical constituents of this substance. And that is what must be considered in connections with bacteria passing through or along the side of this agent. And another very important point in connection with this subject is the kind of organism that is used in the experiment, and also the kind of media.

Bacteria produces a definite and fixed chemical agent when all of the physiological environments are present for its growth, but it is a well-known fact that unless the nutritive substances are present, they will not conform to all of the biological principles of producing these chemical substances that has more or less influence on both organic and inorganic material.

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#### DISCUSSION OF DR. COOK'S PAPER.

Dr. De Ford: The executive committee of this society is to be congratulated upon securing the presence of so scholarly a gentleman to address us this morning. The paper needs no praise from me; it speaks for itself. While the essayist may be a stranger to most of us, he is not a stranger to those members of our profession who keep abreast of the times along pathological lines. Since Prof. Black has been devoting himself so exclusively to dental technic and Prof. Sudduth abandoned dentistry for medicine, there is no one with whom I am acquainted who is devoting so much time to original pathological investigation and research as Dr. G. W. Cook of Chicago. His paper is valuable because the statements made by

him and the data collected by him are to be relied upon. Coming from some sources such statements would amount to nothing, and not be worthy our consideration.

Not only is the Doctor a recognized authority on pathology and bacteriology, but the manner in which he interprets what he sees stamps him pre-eminently a teacher. He clothes his thoughts in language that can be understood; what he says instructs rather than confuses the seeker after truth.

The experiments related in this paper cover a period of several years, and only those familiar with such experiments can properly estimate the labor, patience and skill involved. I for one am perfectly willing to accept his statements and grant that his observations are correct. I believe what he has seen and tabulated goes to corroborate in a large degree the truthfulness of the experiments related by Dr. Webster of Toronto, Canada. We at least now have two witnesses that testify positively that none of the agents used by us for closing the root canals of teeth prevent the ingress of micro-organisms. Dr. Cook used cements and gutta percha, while Dr. Webster experimented variously with sandarac varnish and cotton, temporary stopping, gutta percha, and oxyphosphate and oxychlorid of zinc cements. And Dr. Webster further makes the statement that micro-organisms penetrate some amalgams in three hours' time. He admits, however, that oxychlorid of zinc will prevent the ingress of moisture for at least sixty days. Dr. Cook says nothing about the action of these micro-organisms in the teeth themselves, only in glass tubes, but I take it for granted he means to convey the idea that they would act similarly in the mouth as they do in the glass tubes in the laboratory. But all of these experiments have been conducted out of the mouth, glass tubes being used for that purpose. Would the same results be obtained in the mouth? That is the question that interests us, not only as pathologists, but as dental practitioners.

Several years ago Dr. King of Fremont, Nebraska, made extensive experiments of root canal fillings. He would take freshly extracted teeth, wrap their roots in a small piece of moist cotton, then invest them to the gingival margin in plaster of paris (in order that the number and shape of the roots could not be seen) then send them immediately to some careful, painstaking operator to have him remove the pulp and fill the root canals and return to him. Several thousand of these teeth were sent out and then returned ground in such a way as to show the root canal fillings, mounted on card

board with red ceiling wax, each operator to use his favorite root canal filling and method of manipulation. What per cent of the roots sent out came back perfectly filled, do you suppose? In the list were incisors and cuspids as well as molars and bicuspid. One result showed that but forty-seven per cent of these roots were perfectly filled. Astonishing result!

We either do much better than that in the mouth, or else it makes but little difference whether root canals are properly filled or not, for certainly not more than two or three per cent of such teeth treated by us in the mouth give after trouble. What about the microorganisms penetrating the materials used to seal our treatments in the mouth? Will they behave the same in the mouth as in the glass tubes? *I do not believe it.* There are certain vital forces that must be reasoned with. The secretions from the glands, and mucous membrane, and ducts of the mouth are in a degree bactericidal. One resident bacteria in a sense will combat the non-resident bacteria and destroy them. Then again let us grant that bacteria do penetrate the filling material and enter the root canals in swarms after we have filled the root canals the best we know how, say with chlora-percha, gutta-percha and cement on top. All bacteria are not pathogenic. Miller has differentiated something over one hundred varieties in the human mouth, but they are not all disease producing germs by any means. We think the mouths of many patients are filthy when we see them, but tell me, pray, what would be the condition of these mouths but for the millions of friendly microorganisms that abound there.

Now if we fill root canals as poorly as King says we do, and they afterwards swarm with bacteria as Webster says they do, have we not found in these friendly non-pathogenic microorganisms the ideal root canal filling? It must be these kindly little fellows prevent these imperfectly filled root canals from getting us into all kinds of trouble. A root canal that is microscopically clean may be microscopically filthy, and may it not be that these bacteria that penetrate our fillings prevent septic conditions from arising? If these canals swarm with microorganisms, bacteria must be the ideal root canal filling, for about ninety-eight per cent of these teeth give no after trouble.

Bacteria alone do not produce disease. I believe that future investigations will show that certain biological chemical changes in connection with bacteria will have factors in causing disease.

The very latest word of biological chemistry is, every vital func-

tion a ferment—a chemical ferment. For Pasteur, fermentation was always and ever a vital action, a product of the activity of living things. Buckner took a culture of these same yeast cells with which Pasteur has done so much, mixed them with a fine, hard quartz sand, then put the whole under enormous pressure. The sand crushed the yeast cells to pulp. From this pulp flowed a liquor which produced exactly the same fermentative action as the yeast cells themselves. Fermentation then must be due to the presence in the yeast cells of a certain substance which must be pressed out of them. The saliva has its ptyalin, the stomach its pepsin, the liver its bile, the pancreas manufactures another, and very recently it has been discovered that the intestines themselves secrete a substance that completes the act of the stomach. The common property of all these is to split up or digest substances they attack out of all proportion to their mass. These are spoken of as the soluble ferments, as opposed to the living ferments, the bacteria and fungi. These are the enzymes of the French writers—diastases of the German. Just as the experiments of Buckner on the yeast cell meant that every form of fermentation by microbes or fungi was due to a specific chemical substance, so did Burtrand's discovery foreshadow the belief that all vital actions are in the nature of ferments.

While I accept cheerfully every statement made by Dr. Cook in regard to the microorganisms being present in glass tubes as his experiments show, yet I am not convinced that they would as easily penetrate the root canals of teeth sealed in like manner in the mouth. In closing, I apologize to Prof. Cook and to the society for the unscientific manner in which I have treated this scientific and valuable contribution, because I did not see the paper or even know its title until yesterday afternoon.

Dr. Pherrin: I have no apologies to make for being brought before you to discuss so scientific a paper by so scientific a man as Dr. Cook and after so scientific a discussion as that made by Dr. DeFord. I feel that they have the advantage of me because I did not see the paper at all until about five minutes before Dr. Cook read it. I am only able to touch upon a few points that I am able to grasp. It is really too deeply scientific for me to be able to realize the full scope of the work. As I understand it, the point of interest to dentists is, whether or not we are able to combat or debar the bacteria from those places or areas where they might form pus and give trouble. I have thought a little along that line, and



I think we can sum it up in this way; that nothing we use at the present time is sufficient to bar bacteria from the apices of pulpless teeth. I believe that the bacteria have the advantage of us if we believe the statements of these two gentlemen who have conducted these scientific experiments. There are pathogenic organisms I believe according to their statements. We will grant that there are a great many. We cannot get around the fact that organisms pass through our fillings, and why is it that we do not get infection in more than two or three per cent of all the fillings that we make? Nature provides a way of overcoming these organisms. Around and about the root of the tooth we have the plastic tissue and in that the circulating medium, the blood. The blood contains, besides the red corpuscles the white corpuscles, which is the scavenger of the system. As I understand it regarding pathogenic organisms that enter the system or enter the blood at any point wherever there is a break in the cuticle, there is a rush of blood to that point and there it forms a resistance which remains there so long as the irritant is present, and if there is a pathogenic organism, there is thrown around it an area of white corpuscles and it is strangled right there before it can reach the system and carry on its work to any great extent, and it is only in those cases that the organism is strong enough or are in sufficient evidence to overcome this area of white corpuscles that is thrown out as a guard; it is only in those cases where we receive the infection, and trouble results. Here is a condition that we do not find in the experiments in the laboratory, i. e., physiological resistance of tissue. For this reason the process of infection does not take place as rapidly in the mouth as it does where these cultures are pure and have all the advantages of the incubator and so forth. There are many of the organisms of the mouth that are beneficial, and the man who discussed a paper recently by Dr. Webster of Toronto, Canada, thought it didn't make any difference if we did have a few microbes in the mouth. In regard to fillings and the sufficiency of our work I wish to impress that it is by the careful manipulation of filling materials that we are permitted to save as many teeth as we do. I hope that we will be fortunate enough sometime in finding a filling material that will be perfect and impervious to the action of bacteria, and that we will know then that all cases will be perfect and we will preserve 100 per cent of the teeth in which fillings are made in the mouth.

Dr. Work: Mr. President, Members of the Society: I am

thoroughly incompetent to discuss a paper of the kind, not having carried on any research on the subject. I have been very much entertained by the paper and by the discussion of Dr. DeFord and Dr. Pherrin, and I am only sorry that I am not able to contribute something myself.

Dr. Gormly: The paper has brought out some very important facts in regard to the penetrating power of bacteria, and it serves to throw some light on the discouraging results that have been attained sometimes in the treatment and filling of root canals, and were it not for the protecting and resisting vital forces that are thrown around and behind all of our work we would have little cause to do anything, because all of our efforts would be entirely futile, as shown by these experiments; our time would be worse than wasted. Great merit is due Dr. Cook for this line of investigation he has taken up, and I hope that he will be able to continue and discover something for us, something which will entirely prevent the difficulties which sometimes ensue from root fillings which we place. I am sure that there is not a graduate of the State University of Iowa here, but feels a great pride in having Dr. Cook with us, and especially as he has made a name and a place for himself in the line of bacteriology, I think second to none in the United States.

Dr. Cook (closing discussion): Dr. DeFord has brought out some very interesting points in regard to the vital resistance or the liability of micro-organisms to produce disease. I eliminated as far as was possible any discussion of that part in my paper, for the simple reason that I could not give in a reasonable length of time the work that I had to give you, any idea of what I had done, and then at the same time discuss the various phases that had come into my mind. I referred in my paper to the germs that pass through the chlora percha or gutta percha fillings within three or four days after they had gone through there as being almost unrecognizable as the same micro-organisms as I had previously placed in the culture, showing that the chlora percha itself, which I demonstrated later, has an inhibiting power for some ten or twelve days to the growth of micro-organisms. There is chlorine given off sometimes to a considerable extent, depending on the atmosphere and depending on a great many conditions under which this chloroform or chlora percha is placed. Another point that I attempted to bring out or rather suggested, is the action of these micro-organisms upon cements. Now in one case in one particular kind of cements, on the

surface next to the growth the cement was undergoing disintegration, showing that these micro-organisms had produced some agent that was capable of destroying cements or capable of causing it to undergo disintegration. Now the difference between the germs that accomplish this is a very great one. In the experiments that I alluded to in regard to Hinkins, I carried on the bacteriological work, while they gave the working out of the chemistry, and they published a very interesting paper. The paper I referred to was the paper Dr. Hinkins read at Paris before the International Congress, and was published in the Dental Cosmos some two years ago (I don't just remember when) showing the chemistry. They worked out the chemistry of the micro-organisms that they tested. Of course they couldn't go over the field of bacteria very well, but they took up a few of the well-known species and showed whether they produced acid or alkaline reaction, and what action the said substance had on cements, and they came to the conclusion that almost all the action on the cement in the mouth must necessarily be from micro-organisms. It had been suggested previously of course that cements disintegrated in an alkaline solution because they (the cements) were acid. That is perhaps an old theory, and the evolution of that idea has culminated in experiments and shown it almost entirely due to the bacteriological action instead of any action of the saliva. Now as regards the vital resistance or the physiological importance of the tissues themselves to prevent this, it is true out of every 560 there are only 38 that can be classified as pathological, and there are a great many other organisms that will take to certain conditions that will bring about a pathological condition under certain circumstances. Now as for the value of micro-organisms in the mouth, I don't know whether they have any value there or not, but we know one thing, that further down they are extremely detrimental to the processes of food; digestion and assimilation are often interfered with, and many of the diseases of the body are due, not to the cell poisoning of the body itself, but to the interference with digestion and assimilation in the alimentary tract by even the most harmless micro-organisms, because they all have to get their living and they must use up certain substances, and in their physiological processes they use up a certain kind of material and give off a certain kind of an agent, it may be toxins. Now the value of canal fillings in my opinion is not so much as a barrier to the action or penetration of micro-organisms, but is due more to the treatment of that tooth

previous to the insertion of that filling. More, what has caused it? If that tooth has undergone a putrescent state and the pulp has undergone a process of disintegration, the substance has become entirely disintegrated in the root canal, I should say when the soft pulp has undergone this progressive disintegration there that there is bound to be formed certain poisons. Now if they remain in that canal there is a liability of these substances being a field where the bacteria may pass around between the root canal filling and the teeth, and these are dangerous. They live indefinitely in this so called pulp gangrene, or putrescent pulp. I have some tubes in my laboratory at the present time that have been filled with a certain class of germ for four years. I have kept them there, and there they remain, and I inoculate rabbits occasionally to observe their action. Now the temperature of the room varies the pathogenic properties of the organisms. Now then, if they destroy the pulp they become inhabitants of certain portions of the dentine and remain there I think indefinitely, and the spores would remain there for an indefinite period, and perhaps under some certain circumstances they might cause disease. For instance, the ingress of oxygen seems to be one of the necessary things. Now many of you perhaps have happened upon open teeth that have gone for years; the pulp has been dead; it has undergone a progressive degeneration and has only occasionally felt sore to the patient. You open into that canal and immediately the face swells up; the patient sometimes has a high temperature, and as it progresses a degeneration of the tissues and an abscess is eventually formed after from five to fifteen days. In this case where the tooth has been practically harmless, or where there has been an attempt perhaps to fill the root and you have found it necessary to remove the filling or for the purpose of crowning it, you find the same thing. The tooth is especially sore, and sometimes you have an abscess and you think you have introduced into that some infecting material. I do not believe that you have. You have simply allowed oxygen to enter the place and those spores that have lain there for years will become active because the certain atmospheric conditions and the physical properties are such as to make it possible for them to re-establish the activity that they have not had for so long. It has been found that spores will live in silk threads for nine years perfectly dormant. There is no spontaneous generation, and the moment that silk thread is placed in the incubator with all the necessary substances it grows active very soon

and yet keeps its pathogenic properties. Now those are the conditions that are their favorites or that bring about these pathogenic conditions. The resistance of the tissue depends altogether upon the condition of the bacteria, and as for the condition to be such as to bring about a disease itself, I have a doubt whether the cells of the body will poison themselves or not. We have no knowledge; the knowledge of all the diseases we have, any different knowledge is due to some external cause either in the vegetable or animal field; so it is a question in my mind as to how much credit we can give to the body as producer of disease itself. But the vital resistance is not so great sometimes as the atmospheric conditions or the environments of the organisms themselves. Now in the progress of these germs they pass through that chlora percha—I used that for the purpose because I wanted to test something of their pathogenic properties in connection with this. Those germs pass through the chlora percha; they were changed instead of being typical bacillus; they would not produce any diseased conditions when inoculated into rabbits, and it showed in the process of disintegration in passing through the chlora percha it had changed the germ. So there is yet a great field. I have done different things from time to time. I had unfavorable circumstances to study the conditions, and these little tabulated statements that I have given you here today were simply to lead up to the thought along the line of what can be accomplished if the work is only done. I wish to say that I have been pleased to be here at this meeting, and I am only sorry that I could not give this paper to the men who were on for discussion. I didn't have a program until I got here. I didn't know who was on except Dr. DeFord. I didn't get my paper finished—in fact a majority of these experiments are now in the laboratory as yet uncompleted. I have only given you a few of the most salient points. The point I tried to bring out was the mixing of the cement and its application to the glass tube. I can now perfectly cement a glass tube for at least sixty days. That is as far as my experiments extend, because I have learned so much about the mixing of cement since I started at this thing that it has given me some idea of the necessary care that should be used in mixing cements and in its application to the part in which you are going to use it. Dr. Ames kindly gave me instruction and gave me some very excellent points in regard to the mixing of this cement and its value in glass tubes. Now its application in the mouth is different. We know that where

they have been surrounded with a culture media it is far better than the average saliva, in constant contact with that for thirty or forty days we see some results. Now it is an indication somewhere that can be worked out more accurately than it has been, the value of these substances. I think cements are pretty nearly, or at least the best cements, are pretty nearly correct; but for the conditions under which these cements are placed and the liability of the constant contact with micro-organisms is unknown. I think that these cements would last for an indefinite period, if it were not for that constant coming in contact of the teeth with certain germs that cause trouble. Whether it is an acid or an alkali, is a question. We know that bacteria will produce substances that are neither, and yet can destroy many substances; and that some of them have a profound influence upon iron and some of the metals in the earth, all of which are influenced by the microorganisms. So the field of pathology is simply the field of biology, and a person cannot hope to be very scientific on the subject of pathology unless they are acquainted with the biological phenomena of all the processes of regeneration and degeneration.

(Proceedings of Iowa State Dental meeting to be continued in our next issue.)



## THE INSTITUTE OF DENTAL PEDAGOGICS.

The above named society convened in annual session at Buffalo, Dec. 28.

The opening session was called to order shortly after 10:30 with about sixty delegates gathered in the Iroquois assembly room, some of the delegates from Chicago and other western points having been held up by delay in railroad traffic and not being able to reach Buffalo until after noon. The address of welcome to those in attendance was delivered by George B. Snow, dean of the dental department of the University of Buffalo, who bade the delegates a hearty welcome, assuring them that Buffalo was glad to see them and felt honored by their presence. A felicitous response was made by Edward E. Kirk, dean of the dental department of the University of Philadelphia.

The regular business of the convention was then taken up. The president's annual address was read by President Patterson. Dr. Patterson discussed "Some Faults of the Prevailing Dental Training," and thanked the delegates at its conclusion for the honor conferred upon him in elevating him to the presidency. Discussion of the paper was opened by John I. Hart of New York, George E. Hunt of Indianapolis and R. H. Hofheinz of Rochester. B. Holly Smith of Baltimore and H. P. Carlton of San Francisco, who were expected to take part in the discussion, were unable to be present.

The afternoon session, which was called to order by President J. D. Patterson of Kansas City shortly after 2 o'clock, was consumed by the reading of a paper on "The Dental Curriculum," by George E. Hunt, of Indianapolis. The resulting discussion was opened by G. V. Black of Chicago and followed by J. B. Willmott, of Toronto.

In the evening at the dental college of the University of Buffalo "Orthodontia Technology" was considered in two papers, one by S. H. Guilford of Philadelphia and the other by C. S. Case of Chicago. The discussion was opened by W. E. Grant of Louisville, followed by A. E. Webster of Toronto, H. A. Pullen of Buffalo and H. T. Smith of Cincinnati.

A particularly interesting feature of the session was the exhibition of work done by students in the various dental colleges of the country.

Two interesting papers were read at the afternoon session. A.

O. Hunt of Omaha, Neb., read a paper on "Methods of Teaching the Artistic Elements of Prosthetic Dentistry," and B. J. Cigrand of Chicago read a paper on "Methods of Teaching the Anatomical Arrangement of Teeth." After the reading of the papers there was a discussion which was participated in by N. S. Hoff of Ann Arbor, G. H. Wilson of Cleveland, R. R. Freeman of Nashville, and F. H. Berry of Milwaukee.

Following this discussion D. R. Stubblefield read a paper on "An Ideal in Pathology." On this paper there was a discussion in which the following participated: H. A. Smith of Cincinnati, B. Hartzell of Minneapolis, A. H. Peck of Chicago, and O. L. Hertig of Pittsburg.

The morning session of the convention was held at the Dental College of the University of Buffalo.

Owing to the presence of so many dentists in the city, among them those composing the organization committee of the Fourth International Dental Congress to be held at St. Louis next year, H. F. Burkhart of Buffalo, chairman of the committee, called a meeting in Room No. 50 of the Iroquois to discuss matters relative to the congress.

#### THE BANQUET.

A banquet was given to the members in the evening following the second days' session at the Iroquois Hotel. The banquet was held in the spacious banqueting hall of the hotel, and was of the nature of a brotherly pledge between the visiting and the local dentists. There were present also members of the western district of the New York State Dental Society and of the executive committee of the fourth international dental congress.

The technical problems of this year's convention were temporarily forgotten, the battleaxes of the opposing factions were laid aside and the evening's remarks fairly bubbled over with good-fellowship. The responses to the toasts were of an exceptionally brilliant order, and the hospitality of the city was gratefully referred to by each of the speakers.

W. J. Leake of Lockport acted as toastmaster, and toasts were responded to as follows:

"Our Guests," F. E. Howard of Buffalo; "Institute of Dental Pedagogies," J. D. Patterson of Kansas City; "Fourth International Dental Congress," H. J. Burkhart of Batavia and Wm. Conrad of St. Louis; "Dental Education," E. C. Kirk of Philadelphia;



"Our Honored Dead," T. W. Brophy of Chicago; "The Editor," W. F. Smith of Philadelphia; "Dental Science and Art in the Old Countries," R. H. Hofheinz of Rochester; "The Profession and the Colleges," C. S. Butler of Buffalo.

Impromptu remarks were made by G. V. Black of Chicago and M. F. Finley of Washington.

The committee of arrangements, to which is due the success of the banquet, was composed of S. Eschuan, chairman, and W. W. Paull, E. Muntz, B. W. Whipple, F. A. Ballachey and C. A. Bradshaw.

The reception committee, to whom the delegates are under obligation for the entertainment received during the convention, consists of L. Misburger, chairman, and C. S. Butler, J. W. Beach, J. L. M. Waugh, F. W. Low, M. B. Straight, R. Murray, S. A. Freeman, C. W. Stainton and C. E. Wettlaufer.

#### CLOSING SESSION.

The following officers were elected:

H. B. Tileston of Louisville, president; W. H. Whistlar of Cleveland, vice president; W. E. Willmott of Toronto, secretary and treasurer, and an executive board composed of D. R. Stubblefield of Nashville, R. H. Jones of Philadelphia and L. P. Bethel of Columbia.

Louisville, Ky., was chosen as the next place of meeting.

The closing day's programme was a paper by H. L. Ambler of Cleveland, O., on "The Value of Instruction in Dental History and Literature," and a paper on "Porcelain Technology," by H. J. Goslee of Chicago.

At a meeting of the board of governors of the Maryland association arrangements were made for the part to be taken by the representatives of Maryland at the convention, and a special committee, composed of B. Holly Smith and C. J. Grieves, was appointed by President W. G. Foster to perfect the details for entertaining the visitors from the South.

The Maryland representatives will participate mainly in the entertainment features. The programme will include a reception to the visitors by President Roosevelt Wednesday afternoon, February 24. The proceedings will be opened with prayer by Bishop Satterlee of Washington. Addresses of welcome will be delivered by W. G. Foster, president of the Maryland State Dental Association; Commissioner Macfarland of Washington, President Monroe

of the District of Columbia Dental Association, and the president of the Southern Branch of the National Dental Association.

#### AMERICAN SOCIETY OF ORTHODONTISTS.

The third annual meeting of the American Society of Orthodontists was held at Buffalo December 31 and January 1, 2, under the presidency of Dr. Milton T. Watson of Detroit.

Among those present and taking part in the programme were: R. Ottolengui, New York; Anna Hopkins, St. Louis; Robert Dunn, San Francisco; N. S. Hoff, Ann Arbor, Mich.; Lloyd S. Lowrie, Chicago; G. P. Mendell, Minneapolis; A. H. Ketcham, Denver; F. C. Kemple, Erie, Pa.; Norman G. Roach, Boston, Mass.; D. Willard Flint, Pittsburg; S. Merrill Weeks, Philadelphia; R. B. Stanley, New York; H. J. Goslee, Chicago; Joseph Head, Philadelphia; J. J. Rojo, Mexico; F. B. Noyes, Chicago; M. Dewey, Keokuk, Ia.; Richard Summa, St. Louis; H. E. Lindas, Great Bend, Kan.; F. M. Castro, Columbus, O.; E. A. Bogue, New York, and W. J. Brady, Iowa City.

None but specialists and teachers will hereafter be admitted to membership. The morning session was opened with an interesting address by President Watson, which was followed by Hart J. Goslee of Chicago on "Artificial Substitutes for Missing Teeth in Orthodontia."

R. Ottolengui of New York read a paper on "A Study of Occusul Relations of the Jaws of Cleft Palate Cases." N. S. Hoff of Ann Arbor followed with a paper on "How Much Orthodontia Should We Attempt to Teach Students in Dental Colleges?"



## WELL KNOWN DENTIST TALKS ON AN INTERESTING SUBJECT.

At the recent session of the dentists of Superior, Duluth, St. Paul and Minneapolis, Dr. C. A. Van Duzee of St. Paul read a paper. It was entitled, "The Relation of Patients to Dentists," and was very interesting. In fact, it was not only interesting to the dentists, but should be to the average citizen. It is as follows:

The relationship between suffering humanity and the dentist is a problem which is modified by the most conflicting and varying motives. The wide differences between the qualifications and professional value of the man upon the one side and the lack of ability of his patrons and the lack of ability those factors, which form a basis that makes possible the placing of a value upon a man's judgment, render it impossible to approach the solution of the problem with a definite platform from which to work.

A clear conception of these varying factors and a progressive accomplishment of an intelligent and mutual understanding of the matter is most desirable. In order to make clear to you these thoughts it will be necessary to present some incidents of daily practice, and from each draw the conclusions which seem to bear upon the subject in a given case.

I firmly believe that the educational situation is one upon which we may all congratulate not only ourselves, but the people at large. The progress which has been made by the better class of dental colleges in the past ten years is marvelous. If it were possible to incorporate in the faculty a chair which might handle the subject matter of this paper as successfully as are the various other elements of a dental education, and then to inject into the system of our common schools an elementary knowledge of the dental apparatus, we might feel that the clouds which hover about our professional future were in a fair way to be removed.

It is quite common for a patron to enter the dental office with the expressed desire of ascertaining the price of a given operation, very much as the same person would enter a grocery store and inquire the price of a pound of cheese, and to decide, upon the answer being given, from the same standpoint in either case.

No true professional man will become a party to such a transaction, and the sooner we all realize that this matter of making estimates and quoting prices upon our operations, except in the most general way, is one of the greatest mill-stones about the neck

of the profession of dentistry the better. It is impossible to avoid this matter entirely among a large number of men, but the recognition of its iniquity and a constant effort to live it down is essential to our future progress.

To those who approach us on this subject from motives of a commercial nature, no quarter should be shown. To those who, by reason of poverty, are obliged to count the cost, the greatest kindness should be shown and a conscientious endeavor made to enlighten them. You will agree with me that it is almost impossible to accurately estimate the cost of a given operation, and that the operation in itself may be made in a manner to make its value several times what it might cost if slighted.

A large proportion of the patients we see have been taught to look upon an amalgam filling, a rubber plate, a gold crown or an extraction much the same as they consider a bar of soap or a pound of tea. Who is responsible for this condition of the public intellect? The answer is not quite so simple as might be imagined.

First and largely we are personally to blame not alone for the things we have done, but far more the things which we have not done. The question of educating a community of people long used to certain pernicious customs, and of leading them out of their ignorance into the light of the present day, with its progress and bright promise for the future, is no easy task; and yet to the dentist who is abreast of the times the very effort brings its own reward. It is impossible to conceive the need of such an effort without gaining strength. It is impossible to correct the evil without broadening our grasp upon those things which make success. The race for professional standing and for financial reward is usually won by the dentist who studies the course and trains himself for the contest with care and judgment, and with the greatest attention to the little things which make up the whole.

The principles which underlie the subject matter of this paper are crystalized, and they apply to the solution of any given problem with accuracy. If you agree with me that the conditions exist, I have no fear but that you will subscribe to the methods and ideas for their correction. I am going to take up the subject of amalgam filling first, and, at the risk of tiring you, refer in detail to some few points which affect its value.

In days gone by it was the custom to enter a cavity of decay with a coarse burr and roughly clear away the softened tissues and

debris, wash the cavity with cold water, and, with little or no attempt at the exclusion of moisture, to pack it full of an alloy whose chief merit was its cheapness and ease of manipulation; trusting to the future chance of the patient receiving enough service from the plug to cover our disgrace, or that nature might tolerate it until a sufficient time had elapsed for the patient to forget. And when these things did not happen we were compelled to find some reasonable excuse for laying the blame upon the tooth, the patient, or anything but the real culprit. There was little attempt at aseptic treatment of the cavity walls or underlying tissues, and little regard for the interproximal space, contour, resistance to stress or finish. It was during this period that the price of one dollar or less for an amalgam filling among a large number of men became the custom, and there were a class of men who needed the money and were just foolish enough to think that they could attract business by cutting that price. I have seen twelve amalgam fillings made in one hour for \$12 after an unsuccessful attempt made to get \$15, and it is very safe to say that they were not worth very much more than they cost.

To-day the progressive man begins such an operation with a careful study of the entire case. He notes the amount of stress such a filling must stand, the occlusion, the interproximal space, the character of the soft tissues and of the teeth. He lays the marginal lines to include areas susceptible to decay, and forms the walls of the cavity with reference to the direction of the enamel rods. The interior of the cavity is designed to conform to well known scientific principles, the rubber dam is carefully adjusted, and the cavity is made aseptically clean. In compound cavities the anchorage is obtained occlusally at the expense of considerable labor and the exercise of great judgment, a matrix is adjusted and slight separation obtained. The alloy from which the filling is to be selected because of the record it has made and with a fair knowledge of its probable behavior. The amalgam is mixed according to a method which experience has determined to be the best. It is packed with care, because we have learned that it requires care to make a good filling. The occlusal margins are gone over lightly with a tapping movement as the crystallization begins, and this is discontinued before the stiffening of the mass has reached an appreciable extent. The filling is, or should be, then left absolutely undisturbed until the matrix can be drawn buccally or lingually without damage to the point in contact. The gingival margin is carefully trimmed almost

flush with the cavity margin, and the balance of the filling roughly carved to form. The patient is dismissed with a definite understanding that the work is but partially completed, and at a subsequent sitting the filling is finished and polished with much care and labor. It is during the time when such work becomes general that five, ten, fifteen or more dollars will be the recognized fee for such an operation; it is safe to say that, if a sufficient amount of brains have been used and an adequate skill acquired by the operator, the filling will be well worth more than it has cost.

In the good old days, which many of you can remember, it was quite a custom to handle an exposed pulp somewhat as follows: A greater or less portion of arsenic, generally greater, was placed in contact with the exposure and covered with a pledget of cotton saturated with sandarac varnish, and allowed to remain for a period of time which was generally governed largely by the convenience of the operator; and, if he happened to be busy, it was not unusual for it to be retained until the soft tissues were sadly destroyed or the pulp infected seriously, or both. The pulp chamber was then opened and the remaining soft tissue removed more or less completely, generally less, and with more or less intense pain to the patient, generally more; and after an attempt to sterilize the root canals with medicaments, selected without rhyme or reason and more or less contamination by the saliva between sittings, to fill these canals indifferently at best with various materials. It was during these times that it was not uncommon for this portion of the operation to be included in the fee charged for the subsequent filling, which might be as much as three dollars, but seldom was.

To-day, even if the same general plan is retained, we know that the arsenic must be reduced to the most minute quantity, and that it must be sealed absolutely. We know that the pulp chamber is never to be entered until the environment has been rendered aseptic and the possibility of infection of the canals prohibited. We know that a canal recently cleansed of its pulp tissue under these conditions, and by means of instruments which make it impossible to complete the work, is ready to fill and should be filled.

In a large and constantly increasing number of such cases pressure anesthesia is indicated and can be successfully accomplished. We have learned by years of study and research and by hours of toil that the old ways were not correct; and through the medium of professional intercourse, of which this gathering is but an example,

and the frequency of which we must congratulate ourselves is increasing; through the multiplication and perfection of our periodical literature and from the fact that these publications come quickly and frequently to our hands, laden with the best that the most progressive men of a progressive age have to offer us; in view of all this and more, we are to-day in a position to give our patrons something for more valuable in the way of service. And the time is at hand when we owe it to ourselves, our families, our brother practitioners and our patrons, to insist upon a just compensation for our efforts and an intelligent appreciation of our services.

Once upon a time we used to clean teeth at fifty cents per, and it is safe to say that our patrons got just about what they paid for. They through the untiring energy and keen perception of such men as Dr. Eugene Talbot, we know that the slightest irritation to the gingival tissues will gradually and surely bring us face to face with a disease, which under favorable conditions will grow in magnitude and assume hideous proportions. We know that the progress of this disease is governed by a maze of obscure conditions. We know that a proper diagnosis of a case requires the exercise of an intelligence which is of the highest character, and that it takes time and labor to accomplish a comprehensive mastery of the situation. We know that the most painstaking care is necessary in the treatment of these cases, and we also know that a superficial operation is practically worthless.

We have permitted ourselves to drift on from year to year using the old term—cleansing the teeth—and we have educated our patrons to consider it so. How many of us have had a patient, for whose ignorance we are largely to blame, express surprise and anger at a charge of several dollars for cleansing their teeth? Shall we continue to accept a fee that is on a par with one received by a barber for a shave or a bootblack for a shine? I have assisted surgeons in many operations in the hospitals, the office and the home, and you will agree with me that the knowledge and skill necessary to handle a case such as this is greater than that required for many minor surgical operations, and that the time and wear and tear upon the operator is greater; and yet our fee is less than ten per cent of that obtained by our brother surgeon.

I can read in your minds a question, and it is perhaps no more than fair that we consider it. How are these things to be accomplished? We must first realize the truth fully and recognize the

need of a combined and continuous effort to bring about a better condition. As I have said, the educational field, insofar as it applies to the dental student, is in a satisfactory condition. The public may be brought around to our way of thinking in time if the effort to teach them is persistently made. How this shall be done will vary with the individual ability of the dentist. I believe that the time is ripe and that the occasion demands a subdivision in the ranks of professional dentists. It should be possible for a man to rise above the general level in a way that would be clearly appreciated by all.

Take, for instance, a practitioner who has the degree of M. D. in addition to his own, or who has accomplished valuable research or discovery, perhaps also a certain length of time in practice might become a factor. In any case, the ability of a man to rise above his level should be rewarded by a classification which would result in added dignity and standing before the world. You may prescribe tests and conditions as you will, and if the reward is there in no uncertain form candidates for advancement will not be lacking; and the stimulating effect of the struggle to excel and reach the goal would react with immeasurable advantage to us all. For example, a doctor of stomatology, or whatever you may call these men, might have as his assistant a dentist, very much as now a dentist has as an assistant a student. In the cities the poor may be cared for in infirmaries. In smaller towns the government should provide under the supervision of the resident practitioner, for similar service. There is room in the field for many times the number of graduates our institutions can provide, and the welfare of the human family demands that the necessity for this work be appreciated and the means for its accomplishment be forthcoming. We pride ourselves upon our civilization, our refinement and our learning, and yet the most unclean thing on earth is little worse than a neglected mouth, and but a very small fraction of our people are above reproach.

We are advancing; knowledge is becoming general; the fear of our work is becoming less; the possibilities for good are more often available, but the advancement is not as rapid as it should be and knowledge is not so widely disseminated. We must overcome more successfully the dread of us, and we must strive more to progress. Life is short at best, and if we are to see the results of our labor we must be up and doing.



As I have said before, effort brings its own reward. If you must work for the poor for little reward in money, charge the rest to charity, which is good and as it should be; but do not for a moment forget that the honest effort is seldom paid for, and to those who can truly and reasonably afford it place a just value upon your work and collect the bill.



## DR. M'GEHEE'S ADDRESS

Members of the classes of the New Orleans College of Dentistry assembled in the college hall, 851 Carondelet street, last night to hear the annual address to the New Orleans Academy of Stomatology by Dr. Edward L. McGehee. A smoker and feast followed, and a jollier crowd has never assembled in hall or pleasure resort. Dr. McGehee spoke on "Why Should an Ambitious Man Study Dentistry?" Each year an address is made to the college students by one of the leading practitioners of the city. This year Dr. McGehee was selected for that signal honor. When his name was announced by Chairman Magruder, who presided at the meeting, and as he arose to speak, he was cheered heartily.

Dr. McGehee said in part:

"After the age of adolescence, when the realities of life are understood and its vital issues duly considered, every successful man in the exercise of his God-given volition, chooses his vocation and is the architect of his own fortune.

"As medicine is the only calling of which I have any practical knowledge, I will be excused for comparing its attractions with those of dentistry. Though medicine requires long preparation, faithful study, and brings peculiar responsibilities, unselfish work and too often short life, it seems a brighter field and a better destiny than dentistry. Let us consider.

"There are 27,000 medical students in the United States, and over 5,000 graduates annually, which, according to estimates of Dr. Billings, is 2,000 in excess of requirements of the populace.

"There are only 27,000 dentists in the United States to-day, one for every 2,592 persons. In medical ranks there is one physician for every 500 persons.

"A sawmill near here, incomplete and without having turned a wheel, not advertising for a doctor, received forty applications from qualified and experienced physicians to do their work.

"There are sixty institutions dedicated to the systematic education of dentists. Cost of supplies and material involves millions of capital. There are more than 500 medical institutions in the United States, with proportionate cost.

"The history of dentistry shows it to be a special department in the science and art of health which doubtless was man's first effort to relieve bodily ills, the cause of these ills being so readily detected.

"Five hundred years B. C., Herodotus alludes to dentistry as a distinct vocation. The teeth in the crania of the Cahei aboriginal races give evidences of the art. Egyptians, the famed head of the sciences, in their records, show a familiarity of this subject. Recently mummies have been found with gold bands holding artificial teeth to natural ones.

"Of its growth little is known from the time of Hippocrates from 460 B. C. until the seventeenth century. In 1678 a Holland anatomist published an account of the tubular structure of dentine. Then the work was done by the general surgeons; but their training did not prepare them to restore the teeth by mechanical means, hence the artisan whose skill enables him to devise substitutes for lost dental organs and from this systematic study and organized professional training has developed a high degree of perfection. In England 100 years ago dentists were all medically and surgically educated men. Joseph Fox and Thomas Bell, who published works, show a knowledge of anatomy and pathology and therapeutics. It is this high standard the Southern dental colleges are determined to perpetuate.

"Dental diseases are increasing, and the profession of medicine is becoming more alive to the possibilities of dental disorders being important factors in the production of certain diseases.

"The lack of facilities in medical schools for obtaining the necessary training in mechanical procedures of dental art led to the establishment of the first dental college, and, unfortunately, placed dental educators upon a basis independent of general medical education. The increase in knowledge of the diseases of the mouth and its contained organs, and the growing of the vital relationship of the oral tissues to the body as a whole, have gradually compelled the broadening of dental education curriculum until now in all first-rate colleges the fundamental med-sciences are included, and upon a scientific foundation is erected the superstructure of technical education and manual training necessary to the art of the dentist. No longer depending upon the uncertain results of the apprenticeship system, the development of dentistry in America has been phenomenal. European dentists may write more and do more original scientific research, but the most skilled operators are American practitioners. In Europe, strange to say, the American dental surgeon is more appreciated than the American general surgeon. To-day the whole field of dental and oral pathology has been

so far developed by study and research as to place modern dental practice distinctly upon the recognized specialties of the healing art.

"Most of the bacteria causing general bodily disease find access to the system through the month, which is also the habitat of many bacterial benign and disease-producing as well; hence the importance of hygienic care of the mouth, the training of dental practitioners has been so enlarged that in the foundation elements are now co-extensive with that of general medicine, but specialized with reference to its particular field of prosthetic and other operation and manipulation of materials needed for composition requiring knowledge of metallurgy.

"The answer to the question which is the title of this paper is clear to all:

"1. Every one desiring to be of value to the world who has a fitness for this department of medicine finds opportunity to prove useful to his fellowmen. It is skill that the world needs and for which it is willing to compensate.

"2. Where hygienic laws are understood and observed general diseases are becoming less frequent. In Germany they have decreased 60 per cent in the last half century. Why not expect the same in other parts of the world; as every medical man feels it his duty to teach sanitary science? While, on the other hand, dental trouble and disease consequent upon it and neglected oral cavities are known to be increasing.

"3. There are 2,000 surplus physicians graduated yearly in the United States, and to-day there are as many students of medicine as there are dentists in this grand republic.

"4. Since the apprenticeship has given way to a thorough course of instruction in all sciences of medicine, and bacteriology, the foundation of pathology, requiring four years, seven months' course in each year.

"Dentistry deserves to rank with other specialties of the healing art, and thus offers a broadening field that will attract the most ambitious."

After the address Mr. Magruder announced that the remainder of the evening would be devoted to pleasure. And it was. Punch, sandwiches, salads and other delicacies were served. There were humorous addresses by Dr. Archinard, Dr. Friedrichs, the dean of the college, the presidents of the senior, junior and freshman classes and others.



# EDITORIAL

## THE IROQUOIS FIRE.

Since my name has been mentioned in connection with the Iroquois fire, it might not be out of place for me to mention some personal experience in the identification of one of the victims of that terrible disaster, after some twelve hours spent in an effort to assist in the relief of those who sustained more or less serious injuries.

I was called on New Year's day to assist a bereaved husband to identify his wife, who had been my patient something like a year previous, and in whose mouth I had inserted a bridge, which I felt sure I could positively identify.

The relatives had found several bodies, one of which they were almost certain was the one sought. To these they directed my attention, but on thorough examination neither of them proved the right one. I then made a systematic examination of the bodies there and the ninety-second proved to be the body of the wife of my friend.

One can scarcely imagine a more difficult task than that of opening the mouths of the dead, especially in these cases, as they were burned until the flesh would in most instances readily leave the bone. Another difficult matter was that there were so many women, and, as a rule, they differ little in general size and characteristics.

When we consider that on the morning of the 3d day there were still over two hundred unidentified and seventy-two per cent of these had more or less dental work in the way of fillings, plates and bridge work, it would have been extremely difficult to have identified all the victims of this disaster had it not been for these dental operations. We believe at the present writing all but one was positively identified.

It seems at the present enlightened day the public press should call attention to such means as dental operations for the identification of individuals, where the features and general appearance had been so mutilated as to render it impossible to recognize by ordinary means.

It seems that this would also illustrate the importance of dentists keeping a full record of all their operations, for instance, there was one woman who had an upper artificial denture, in which gold filling had been inserted, and this individual was among the last to be recognized. This was done largely by exclusion. The friends accepted the body after all the rest that had answered the general description had been claimed.

Many persons had to be recognized by various means that were more or less uncertain, such for instance as scars from appendicitis operations, corn plasters on the feet, all of which might appear on the bodies of many individuals.

G. W. C.

# NOTICES OF MEETINGS

## STATE SOCIETY MEETINGS.

California State Dental Society, San Francisco, May 16, 17, 18.  
Connecticut State Dental Association, Hartford, April 19, 20.  
Delaware State Dental Society, February 3.  
Florida State Dental Society, Atlantic Beach, May 25.  
Illinois State Dental Society, Peoria, May 10, 11, 12.  
Iowa State Dental Society, Des Moines, May 3, 4, 5.  
Indiana State Dental Association, Indianapolis, June 14, 15.  
Maine Dental Society, Bangor, July 19, 20, 21.  
Minnesota State Dental Association, St. Paul, June 16, 17.  
Mississippi Dental Association, Jackson, April 19, 20, 21.  
New Jersey State Dental Society, Asbury Park, July 21, 22, 23.  
New York State Dental Society, Albany, May 13, 14.  
North Carolina Dental Society, Morehead City, June 22-25.  
Utah Dental Association, Salt Lake City, April 4.  
Vermont State Dental Society, Montpelier, March 16, 17, 18.  
Washington State Dental Society, Seattle, May 26, 27, 28.  
Wisconsin State Dental Society, Manitou, July 19-21.

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## NATIONAL SOCIETY MEETINGS.

National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.  
Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.  
National Dental Association, Southern Branch, Feb. 23, 24, 25,  
1904, Washington, D. C.

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## MICHIGAN STATE BOARD.

The State Board of Examiners for Michigan will meet in  
Grand Rapids, Mich., May 10, 1904. Respectfully,  
W. C. McKINNEY, Secretary.

## SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION.

The next annual meeting of the Southern Branch of the National Dental Association will be held in Washington, D. C., February 23d to 26th, inclusive, in response to invitations extended by the District of Columbia Dental Society and Maryland State Dental Association to meet conjointly with them.

The convention will assemble at the University Hall, which building the faculty of the Columbia Medical and Dental Schools have unanimously voted to hand over for the use of the association. At this place ample provision has been made for committee rooms, clinics and exhibits. The list of exhibitors is unusually large, affording opportunity to see the newest equipments for office and laboratory, and the latest in therapeutic agents.

The program which will appear at an early date will present many interesting features, some of the most distinguished operators in America having consented to be present and contribute to the success of the meeting in the way of clinics and valuable papers.

The work of the several committees is progressing favorably, and the character of the papers and scientific reports announced thus far is of a very high order.

The Arrangement Committee at Washington has been especially active, having under preparation a most unique and elaborate program for the entertainment of the association and its guests, notably a card reception by President Roosevelt at the White House, and a banquet on the evening of the last day.

In addition to the above a one and a third fare rate, on the certificate plan, has been arranged from all points. The hotel accommodations of Washington are superb, and reasonable rates have been secured from quite a few within two squares of the meeting place.

It is incumbent upon every dentist interested in the welfare and progress of his profession to attend this meeting, for in so doing he will not only fulfill his duty, but derive much benefit therefrom.

Fraternally,

GEO. S. VANN,

President.

C. H. FRINK,

Corresponding Secretary.

Definite arrangements have just been made by which Dr. G. V. I. Brown, of Milwaukee, Wis., one of the leading oral surgeons of the world, will give an oral surgical clinic. Dr. R. Otto-

lengui, of New York City, one of the leading journalists and scientific operators of the day, will also be present and clinic. The clinic committee have a large number of new and interesting clinics to be presented by other operators of note.

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### THE NEW YORK STATE DENTAL SOCIETY.

The thirty-sixth annual meeting of the New York State Dental Society will be held at Hotel Ten Eyck, Albany, N. Y., Friday and Saturday, May 13 and 14, 1904. Special rates have been secured at the Hotel Ten Eyck and The Kenmore. Special railroad rates on the certificate plan have been arranged with the Trunk Line Association. The business committee has prepared a most excellent program with essays by the following well known and prominent men of the profession, which assures to all who attend an unusually instructive and interesting meeting.

Dr. E. N. Jenkins, Dresden, Germany; subject, "Porcelain."

Dr. Joseph Head, Philadelphia; subject, "Porcelain."

Dr. C. H. Land, Detroit; subject, "Porcelain."

Dr. D. D. Smith, Philadelphia; subject, "Pyorrhea Alveolaris—Its Causes, Sequela and Cure."

Dr. Geo. E. Hunt, Indianapolis, Ind.; subject, "Prophylaxis."

Dr. B. Holly Smith, Baltimore, Md.; subject, "Gold as a Filling Material, Is It Still Important?"

Dr. W. J. Turner, Brooklyn, N. Y.; subject to be announced.

Dr. C. W. Stainton, Buffalo; subject, "Our State Society a Study and an Appeal."

Dr. I. L. M. Waugh, Buffalo; subject, "The Pericementum, with a Lantern Slide Demonstration."

Dr. A. H. Peck, Chicago, Ill.; subject to be announced.

Fellow practitioners conversant on the various subjects announced will open the discussions.

Exhibitors desiring space will please address Dr. J. L. Appleton, 89 Columbia St., Albany, N. Y.

R. H. HOFHEINZ, D. D. S.,

W. A. WHITE, D. D. S., President, Rochester, N. Y.

Secretary, Phelps, N. Y.

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### EASTERN INDIANA DENTAL ASSOCIATION.

The annual meeting of the Eastern Indiana Dental Association will be held in Richmond, Ind., the first week in May.



Dr. John H. Batchelder, prominently identified with dental associations throughout New England, died in Salem Jan. 7. He was 87 years of age and a native of Beverly.

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#### NEW TENNESSEE DENTAL BOARD.

The governor appointed the state board of dental examiners Feb. 3. The board is as follows: George B. Clement, Macon; G. B. Stewart, Greenwood; P. P. Walker, Brandon; J. B. Broadstreet, Grenada; P. H. Wright, Oxford.

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#### INDIANA STATE DENTAL ASSOCIATION.

Dear Friends: Please announce the meeting of the Indiana Dental Association for June 14, 15 and 16, at Indianapolis. A splendid program is being prepared. Respectfully,

A. T. WHITE,

Feb. 8, 1904.

Secretary.

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#### ALUMNI ASSOCIATION OF UNIVERSITY OF BUFFALO.

The annual meeting of the alumni association of the dental department of the University of Buffalo will be held in the university building February 25 and 26 next.

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#### MINNESOTA STATE DENTAL ASSOCIATION.

The twenty-first annual meeting of the Minnesota State Dental Association will be held in St. Paul on June 16, 17 and 18.

Respectfully,

GEO. S. TODD.

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#### BOARD OF DENTAL EXAMINERS OF CALIFORNIA.

The Board of Dental Examiners of California will hold its next examination in San Francisco, commencing on May 23, 1904, and will also hold an examination in Los Angeles, commencing on June 13, 1904.

Respectfully yours,

F. G. BAIRD,

Per M.

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#### DENTISTS' CONVENTION.

The annual convention of the New Haven Dental Association, to be held March 15 and 16, at Harmonie Hall. It is expected that this will be the largest meeting of dentists held in the east in years.

There will be essays by the following distinguished members of the dental and medical professions: Drs. R. Ottolinguì, New York; Henry C. Boenning, Philadelphia; G. Lennox Curtiss, New York; Herbert L. Wheeler, New York; R. A. McDonnell and William H. Metcalf, New Haven; J. Wesley Shaw, Springfield. There will be a large clinic from residents of New York, New Jersey, Philadelphia, Massachusetts and Connecticut and two surgical clinics provided suitable cases are presented.

The business meeting will be dispensed with, thereby allowing ample time for the thorough discussion of all papers.

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### IOWA STATE UNIVERSITY ALUMNI.

The Alumni Dental Clinic, held at Iowa City, Feb. 1-2, proved to be the greatest gathering of dental men ever held in the state. The clinics carried on were all eminently successful.

The alumni of the dental college of the university met and formed a permanent Dental Alumni Association. The following officers were elected:

President—K. M. Fullerton, Cedar Falls.

Vice-president—J. B. Pherrin, Central City.

Treasurer—C. M. Work, Ottumwa.

Secretary—E. A. Rogers, Iowa City.

Committee on Constitution and By-Laws—R. S. Bandy, Tipton;  
Dean W. S. Hosford, Iowa City and Prof. F. T. Breene, Iowa City.





# OBITUARY

## DR. JAMES T. GILMOUR.

Dr. James T. Gilmour died at his home in Chicago, Jan. 28, of peritonitis. Dr. Gilmour was born in Ayrshire, Scotland, Feb. 8, 1854. He commenced practice of his profession at La Salle and Galva, Ill.; later moving to Milwaukee, Wis., where he entered into partnership with Dr. Woodworth. They were the first to introduce bridge work in Milwaukee and were the first dentists to use nitrous oxide gas as an anaesthetic. Later he removed to Chicago and was in practice there for the past fifteen years. A wife, two daughters and one son survive him.

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## DR. EDWARD GODDARD.

Dr. Edward Goddard, who was one of the best known dentists in southern New York, passed away. He had but recently returned from California, where he had gone in search of health. September 14, 1844, Mr. Goddard was born in Bradford county, Pa. At the age of fifteen he moved to Elmira with his parents and entered the office of Dr. Hines, a dentist. Upon the retirement of Dr. Hines several years later he and Dr. Stilson purchased the business. Later he became associated with Dr. Fox, and a few years ago Dr. Bert Chapman succeeded Dr. Fox. After thirty-seven years' practice he retired two years ago.

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## DR. W. J. FOGLE.

Dr. W. J. Fogle, aged 68 years, for many years a prominent dentist of Columbus, Ga., died Jan. 14.

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## DR. GEORGE W. FRANK.

George W. Frank, for the past twenty-five years a retired dentist of Ithaca, N. Y., died of apoplexy at his home, Jan. 11. He had practiced dentistry at Hartford Mills and at his birthplace in Virgil. He was 76 years old.

## DEATH OF DR. L. S. JONES.

Dr. Laurence S. Jones, one of the oldest resident dentists of Harrisburg, Pa., died at his home at 209 Walnut street this morning after an illness of nearly a year. He is survived by a widow, a daughter, Miss Gertrude, and two sons, Walter and Harold. The funeral will be held Monday afternoon at 1:30 o'clock.

Rev. Leroy F. Baker, pastor of St. Paul's Episcopal church, will officiate and the body will be interred at Paxtang. Dr. Jones was born at Hagerstown, Maryland, March 2, 1855, and received his early education in that town. He afterwards graduated from the Philadelphia College of Dentistry, after which he moved to this city where he has led an active professional life ever since. Dr. Jones during his twenty-five years of residence in Harrisburg was a leading worker for the cause of Democracy.

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DR. TETAMORE DEAD.

Dr. Tetamore, formerly a dentist in Brooklyn, was drowned in the Philippines recently. When the Spanish war broke out, Dr. Tetamore became a physician and was surgeon of the Twenty-second Regiment. He saw service in Cuba. After the close of the war he went to the Island of Luzon, and was placed in charge of three government hospitals. Dr. Tetamore resided in Matteawan before he came to Brooklyn.





## PERSONAL AND GENERAL

### THE AMERICAN DENTIST IN EUROPE.

When an American dentist goes abroad for the first time he is apt to be delighted to see the sign, "American Dentist." It is not because he has the toothache, and welcomes a pair of forceps to obtain relief. He may not have a natural tooth in his head. Nor is it because he has more money than he knows what to do with. He may never have paid a dentist's bill. On the contrary, his delight is only another form of patriotism. That dentist's sign affects him much the same as his flag. He regards it as a token of American skill and success. It is only another evidence why America is feared in many foreign lands.

Whether the Yankee is strolling among the academic quiet of Oxford, or rushing on with the crowd on a Parisian boulevard, he will see the sign of the American dentist. If he is in Calcutta, where everything else is Indian or English, he finds the American dentist is there also, and that he is prosperous. Should he seek the wilds of Siberia and visit such cities as Perm, Tomsk and Tobolsk, he will discover that the wealthiest exiles of the Czar are paying their money to an American dentist. Even in Abyssinia, where the natives were wont to file their teeth to resemble the pointed fangs of the Abyssinian lion, the enterprising Yankee dentist is now filing them flat.

Should the American globe trotter, however, make bold to visit the owner of one of these dentist signs, he might at first think he had been duped. He would be likely to meet a man whose speech and manner were not those of the new world. The "doctor" would most likely pronounce his "ws" as "vs," or his "ths" as "ts." His cast of countenance might also indicate that he was of foreign extraction, if his teeth were not. His beard might be that of a Russian, yet he would tell you he was an American, and to prove his assertion he would point to his dental instruments and machinery, all bearing the names of American manufacturers; and on the wall, framed so that the victim of his chair might stare at it throughout

all the ordeal, hangs a diploma which the practitioner says was issued to him by an American school of dentistry.

Were it not for the high standard of the dental schools of this country, the majority of the European and Asiatic nations would be as far behind in this branch of surgery as they were a quarter of a century ago. Students from the United States have settled in every land where teeth grow. Many of them were born where they now have their homes, and came to this country only to learn this profession. Many have spent their all in reaching New York, and were then compelled to live for a time in penury on the East Side before they had enough money to enter a school; but by dint of industry and economy they at last won the long sought diploma, and sailed back to their native land to win fame and fortune. Still others found even better opportunities by making their homes here and practicing among their fellow kinsmen. One may read their signs by the dozen through the foreign quarters of the great cities of the United States.

The New York College of Dentistry, for example, shows by its roster of students how its instruction is being sought by foreigners from every part of the civilized world. A great number are Hebrews, who have come as children, or whose fathers have emigrated hither from Russia, Germany and Poland. As an illustration here are a few names from the roll:

Piero Fiaschi, Australia.

Julius Lowenstein, New York.

Joseph Mota Ranchel, San Domingo.

Joseph Kramer, Russia.

Edward Ernesti Snider, Canada.

Emilio M. Agostini, Cuba.

Bernard Bernstein, New York.

Gustaf Herman Areskog, New York.

Frederick August Lisiewski, New York.

Parsegh Gregoire Terzian, Turkey.

Louis Zwetschkenbaum, New York.

Many graduates of the college who have Russian or Polish names drop the final half dozen syllables if they decide to remain in this country. Such names as Zalinsky or Petermanikoff have been shortened to simple Zall and Peterman.

An illustration of how even far away Russia has come to know of the American forceps was shown the other day by Dr. Michael

Wagschal, a traveling dentist, who announced that he had sued the brother of the Shah of Persia for the tidy sum of \$3,200.

Eight years ago Dr. Wagschal went to Teheran, the capital of Persia, and put out an "American dentist" sign. Although born in Vienna, he had obtained his education in an American school. One day while he was taking out a dead nerve from the tooth of a native Persian, a royal courtier burst into his office with the news that his royal highness, Mazud Ziles Sultan, had a raging toothache.

"He wants you to come and pull it out," exclaimed the messenger. "If you succeed in granting him peace he will make you rich!"

Such sudden fortune the doctor had hardly expected, but he took a last jab at the dead nerve and hurried to the palace. On his arrival he found that Mazud had been persuaded by his court attendants not to trust the "American humbug," as they called him. They said that the doctor would poison him, and that he should let his court barber pull out the tooth. So the barber was called in and told to go to work. Mazud was commanded to lie down on the floor, and then the barber rested a knee on his chest. After prying open the royal mouth the barber adjusted a pair of tweezers to the inflamed tooth, and, bracing himself still further, gave the tweezers a savage twist. The barber at once landed on his head and his highness on his feet. A royal yell resounded through the palace. The barber was ordered to be buried alive, and then Dr. Wagschal again was summoned. By the aid of a little cocaine the doctor pulled the tooth so quickly that his highness did not know it was out. The doctor found that all of Mazud's teeth were decayed, and, after seven months of patient coddling, all of the royal teeth were finally extracted. The doctor made his royal patient several sets of teeth, and so pleased Mazud that he promised to pay the doctor a pension the rest of his life. The pension, however, has gone unpaid for eight years.

In many other instances besides Persia, where educational standards are far higher, native dentists use such crude and cruel methods in "treating" teeth that the people prefer to suffer all the pangs of toothache, and even let their teeth decay and drop out rather than sit in the dental chairs. American dentists have become a legion in Europe, yet the members of many old conservative families prefer to "let their teeth go," as their fathers and grandfathers did before them. In Russia among the lower classes a

peasant will wait until the agony of an inflamed tooth becomes unendurable, when he will get another peasant to pull it out with an ordinary pair of pincers. Frequently the jaw is broken. In St. Petersburg in the last year the police recorded one hundred and twenty suicides from toothache alone. Death is preferable to a broken jaw in the minds of some.

Though the art of dentistry was little known among the people of India before the British soldier and the American dentist came, nevertheless these people had far less need of the dental surgeon than the Americans and the English. As far back as the most shadowy legend, the native of India had been wont to keep his teeth as white as the elephant tusk. Teeth with him are valued as much as an adornment of hair among Caucasian women. Morning, noon and night one will find him scrubbing his teeth. The lover, when he becomes embarrassed, scrubs his teeth. The native of India uses the fibrous root of a certain palm, and, after sharpening it to a point, as one would a pencil, he scrapes the tuft of fibers on and over and between the teeth. Thus the teeth of an old man are often as sound and white as those of a child. The Greeks and Arabians preserve their teeth in a similar way.

Some idea of the backwardness of European nations in dentistry may be seen from a comparison of their dental schools with those of the United States. As a result of a recent extensive investigation carried on by the National Association of Dental Faculties it was found that no European college required work from a student which could be counted for more than one year in an American college with a three-year curriculum. In Spain, for example, there are no dental schools or dental departments in the universities. In Italy there are no dental schools, and the instruction in this branch of surgery given in medical schools is so general that it amounts to little in practical use. In England an apprenticeship in a dental office counts toward a degree in a dental college, whereas such an apprentice would have to enter an American dental college as a freshman. In Germany, France, Austria and Switzerland there is little if any training in mechanical work, which in the dental colleges in this country is made a chief essential.

For the reason that the diploma of an American college is of high value with foreign practitioners, several "fake" colleges have sprung up in the West which promise to graduate students within a few months. By reason of lax state laws it is possible to obtain



a charter for a "college," and to issue diplomas almost with impunity. At the same time that efforts are being made in this country to stamp out the sale of fraudulent diplomas, Consul Worman, at Munich, has used his influence in checking the establishment of "fake" American dental offices in that part of Germany.

Because of the antiquity of the art of dentistry, it seems strange that it fell to such a low standard two centuries ago, when the practitioner pulled teeth by means of a thumb screw, and when crowns and bridges were known only outside of mouths. According to Herodotus, the Egyptians practiced dentistry centuries before the birth of Christ, and not only extracted teeth skillfully, but "filled the holes with foreign substances." In the tombs of ancient Egyptians modern archaeologists have discovered artificial teeth made of ivory and wood, and in one mummy they found teeth filled with white cement and with gold, as if by an American dentist. In Etruscan tombs which had been sealed up long before Æneas sailed from Troy, skulls have been found which contained pure gold wire wound around natural teeth, as if to support them, and also coils of gold wire which seem to have held an artificial set of teeth in place. Such spiral springs were used many ages afterward by John Greenwood, the first dentist of New York, in making a denture for George Washington. The teeth were carved out of ivory.

From the middle ages until the beginning of the last century, there was little advance in dentistry, and after that time Americans gave it far more attention than did the Europeans. The surgeons of Europe seemed to regard dentistry with a sort of condescension, as if it offered too little opportunity for their talent. Now Europe is learning as fast as she can from the United States, and where there were in 1820 about one hundred dentists in the old and new worlds, there are now about twenty thousand.

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On page 75 of the January issue of the AMERICAN DENTIST JOURNAL appeared an article headed "Mrs. Eddy Calls Dentist." Mr. A. V. Stewart of the Christian Science Publication Committee for Illinois answers as follows: Chicago, February 8, 1904.

Editors of AMERICAN DENTAL JOURNAL:

Dear Sirs:—The article in your issue of January 29th, entitled "Mrs. Eddy Calls Dentist," was undoubtedly printed by you in good faith and because of the position of the Rev. Dr. Buckley, who recently made this assertion in the press.

Mrs. Eddy may have had dental work done at some time in the past. On

this subject I am not informed, but I do know that Dr. Buckley and others have in years past caused this story, with perhaps slight variations, to be circulated through the medium of the press and otherwise, and now Dr. Buckley tells the story again, and, without saying so, gives the impression that it is a recent occurrence. I feel assured that your good paper, with its honorable methods, will not be a party to the circulation of such misrepresentations, and that you will therefore print this letter in your next issue.

Respectfully,

A. V. STEWART.

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### WON'T PAY UNTIL HE TRIES ON TEETH.

Dr. Max Landau, dentist, of Third avenue and Seventy-ninth street, pulled the teeth from the upper and lower jaws of Isaac Weinstein, painter, of No. 401 East Seventy-fourth street, New York, and made teeth to replace them.

The agreement was that Dr. Landau was to put Weinstein's mouth in first-class condition and that, in part payment, Weinstein was to decorate the dentist's offices.

Dr. Landau began his work first, and, toothless, Weinstein entered upon his task. When he had finished his new teeth were made.

Dr. Landau's bill was \$57. Weinstein's charge for his work was \$25. Dr. Landau accepted \$10 on account and Weinstein asked for his teeth. The dentist refused to deliver them until the decorator paid him the balance of \$22.

"I've done the work," said Weinstein, "and you want to keep the teeth. That's not right. I am willing to pay you \$10 more and take my teeth on a week's trial. If they fit I'll give you the other \$12, but I oughtn't to pay for teeth until I try them on."

"You'll pay me the whole \$22 in money or you don't get a tooth," declared Dr. Landau.

"I'll sue for my teeth," said Weinstein, "and when I get them I'll pay your bill as soon as you pay mine."

Whereupon Weinstein brought suit.

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### PRESIDENT SIGNS DENTAL ACT.

The President has signed the bill to amend the law relating to admission of dentists to practice in the District of Columbia by providing that the District dental board of examiners instead of requiring an examination may issue a license to practice to any dentist who shall have been in practice for five years or more on the certificate of the board of dental examiners of the state or territory in which he practiced.

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### ROBBERIES.

Thieves made two small hauls in Hamilton, O., January 25. The dental office of Dr. A. L. Hollowell was entered evidently by means of a skeleton key, and gold foil to the amount of seven or eight dollars taken. The office

of Dr. A. T. Good was also entered and two gold crowns stolen. Entrance was easy at Dr. Good's, as he had left his office door unlocked.

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#### AT EAST ST. LOUIS.

Thieves broke into Dr. Ressel's office, 229 Collinsville avenue, January 26, and carried off a quantity of dentists' materials and a small amount of money.

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#### AT ALTON, ILL.

Burglars entered the dental office of Dr. A. C. Barr January 27 and took about \$40 worth of gold and some completed bridge and crown work.

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#### JAMES ANDERSON RETURNS.

James Anderson of Red Wing, Minn., the dental student who mysteriously disappeared from Indianapolis, Ind., November 30, 1903, and whose continued and unexplained absence puzzled friends and police, has reappeared in that city as mysteriously as he departed.

Miss Mattie Allison, said to be Anderson's fiancée at the time of his disappearance, is no longer in that city.

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#### DENTIST A BANKRUPT.

Dr. Albert J. Richter, at Milwaukee, Wis., dentist, has filed a petition in bankruptcy, asking to be discharged of obligations aggregating \$1,500.

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#### A MILWAUKEE DENTIST'S BILL.

J. P. Carmichael, a dentist of Milwaukee, has, through his attorney, filed a claim in court against the estate of the late Jackson I. Case, for \$911, the amount being due for dental work for both Jackson Case and his wife. The payment of the bill was refused because the work, it is claimed, was not properly done. The bills on file show that work was commenced in 1900 and continued at frequent intervals since and until Mr. Case's death.

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#### CONTAINS MANY DIAMONDS.

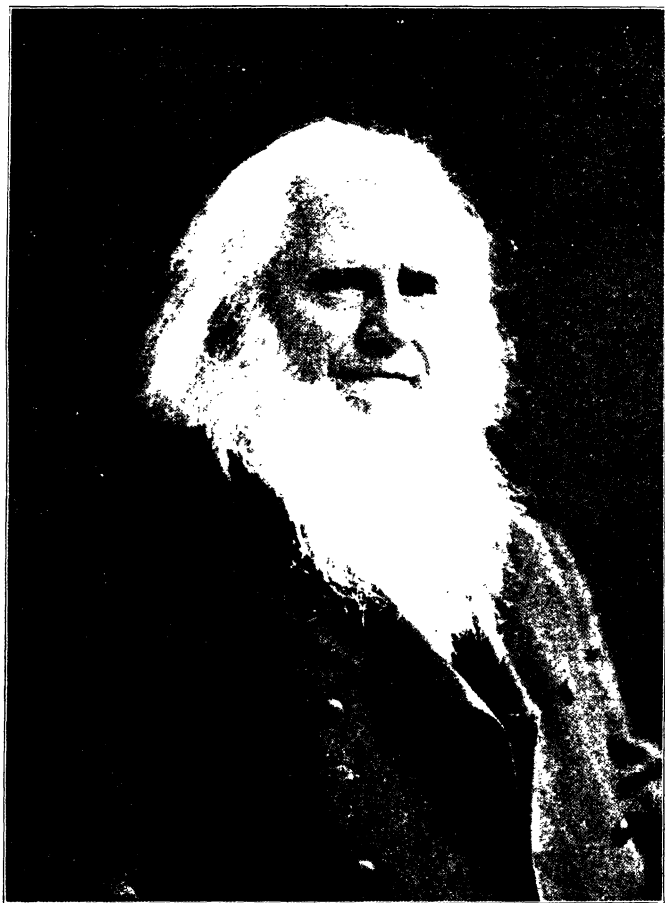
In Bob Fitzsimmons' mouth are 162 diamonds. They are incidental to the improvement of his teeth, which were causing him trouble, and are used in fillings and bridges. The work on Bob's teeth was done in Peoria and is the most unique of its kind in the world.



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T. B. WELCH, M. D.



## PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

### PORCELAIN.

(By F. Ewing Roach, D. D. S., Professor of Porcelain Art,  
University of Illinois.)

### CHAPTER VIII.

Much of the artistic effects of the porcelain crown is lost if care is not observed in the construction of the cope. To construct a cope with a full band encircling the root and conceal the labial portion of the band, though it be ever so narrow, is indeed a very difficult task in the great majority of cases. To retain the band labially, have it concealed entirely, get symmetrical alignment of facing with sufficient overlap for strength and yet avoid peridental irritation, is, in fact, most impossible in many cases, and it is with the view to overcoming this difficulty that we resort to the half or partial band or eliminate the band entirely. Taking into account the difficulties cited in the construction of the crown with the full band, the utter uselessness of the labial portion and the equal facility with which the partial band may be made with its accompanying advantages and no disadvantages, it is the opinion of the writer that the full band cope should in the great majority of cases be abandoned and the partial or no band adopted in its stead.

In the construction of the partial band cope the root should receive the preparation, band fitted, cap plate and post fitted and soldered the same as previously described except that the cap plate should be allowed to project over the band labially about one-thirty-second of an inch, so that when completed and the labial portion of band is cut off it will be sufficiently long to cover the entire labial end of the root when bent down. After finishing cope as indicated the labial portion of band may be filed or stoned off, leaving only the labial extension of cap plate, which is to be burnished to accurately fit end of root after it has been subsequently shortened—labially only, of course, which is easily done now without danger of changing the adaptation of the band and cap plate from the previous adjustment.

The labial extension of the cap plate is retained for the purpose of securing accurate adaptation of base of crown to the end of root and as a guide in obtaining continuity of crown and root, and to insure the latter the plate should project slightly beyond edge of root so that facing may be set correspondingly prominent, and when crown is finished it may be ground off and peripheral continuity secured in the same manner indicated in the crown without a band.

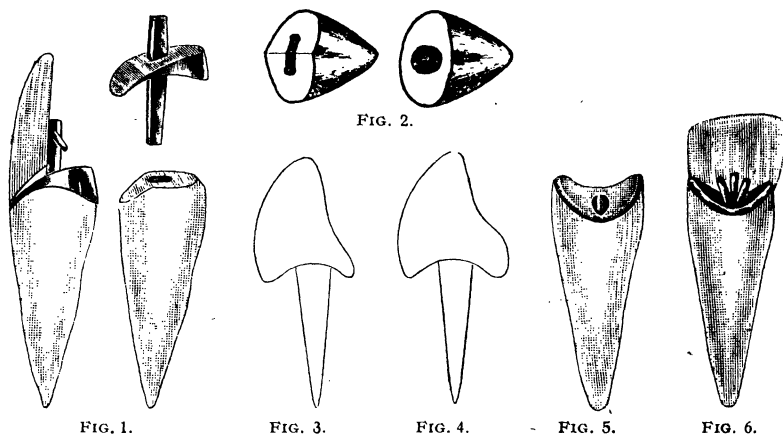
In the adjustment of any crown it is of vital importance that continuity of crown and root be obtained. The projection of either crown or root which forms an irregular surface will act as a mechanical irritation to the gum tissues, affording at the same time lodgment for foreign matter and the eventual establishment of an unsanitary and an unhealthy condition. Any crown, it matters not how perfect in every other particular, will prove to be a failure if this one essential is overlooked. While it may perform a useful function for many years, the abnormal condition of the gum will be the source of discomfort and an unsightly appearance.

The method usually adopted in the construction of **partial band copes** is to use a piece of plate, which extends lingually sufficient to afford material for band on lingual and proximal surfaces. After fitting the piece to end of root excess is bent down and burnished to apposition to the root. It is recommended that a slit or two be made in the overlap to facilitate the work of securing a fit. This form of cope may be used with a degree of success in the so-called Richmond crown, but in view of the fact that the overlap that is burnished down cannot be re-enforced with solder in porcelain crowns, this method should not be employed. Another objection to this form of cope is the proximal termination of the band. This alone should condemn it. The abrupt termination of the band within the interproximal space will invariably be the source of irritation to the gum and periodontal membrane in that region. The band should be continuous and terminate by a gradual taper, merging into the labial plate without any sharp or abrupt angles. In Fig. 1 we have shown partial band which embodies this feature.

Many cases will present themselves for crowns with roots favorable for carrying crowns without a band at all, and when such a crown is indicated and is properly constructed it will more nearly approach the ideal than any crown in use to-day. In making a crown of this kind the tooth should be cut off to the gum line and a disk of 30 gauge platinum plate cut slightly larger than the end



of root. With a small fissure bur or preferably a flexible twist reamer deepen and extend canal buccally and lingually, making a flat rather than a round hole (Fig. 2). The post should be made flat and the edges hammered up to form a slight enlargement to correspond with and fit the canal. The disk is now placed over the end of the root and a sharp-pointed instrument forced through it into the canal, after which the post may be forced through and into place



in the canal. Carefully remove post and disk together and unite them with solder. Adjust to root again, and with foot plugger and mallet go over edge of disk until outline of end of root is produced on under-surface. The disk should be trimmed to this outline. The root is now cut off as far under the free margin of the gum as possible without impinging the peridental membrane. The post must be shortened or the canal deepened now to correspond with the shortening of the root. The circumference of the root being less below the gum and the disk having been trimmed to outline of root at gum line will, of course, be slightly larger, but should be allowed to remain so until crown is finished, when it may be reduced to perfect continuity with root. After root is shortened and post is re-adjusted to canal, the disk should be gone over with the foot plugger and forced into close apposition to the end of root, after which the crown may be completed, following the same procedure outlined for the full band crown.

The root preparation for this form of crown must receive care-

ful attention, or the irreparable disaster—a split root—may be the result. In the first place the end of the root should present, when preparation is completed, a convex end. There are two reasons for giving it this form; one is that greater strength of joint is obtained and the other is freedom from peridental inflammation. In fact, if the root is cut off below the gum all around it will of necessity assume the convex form. The root canal when enlarged by reaming out lingually and labially, gives to it an oblong rather than a round appearance, and by so doing we conserve the tooth structure mesio-distally where it is most needed for strength. It is also apparent that a post made correspondingly flat is, considering the direction of the force brought to bear upon it, much stronger than either the round or square wire, and the greater strength permits the use of a smaller post, which is always an advantage in porcelain construction.

In Fig. 3 we have shown a crown which lacks in lingual contour, and since it is an error so commonly made and is the cause of so many failures in all forms of porcelain crowns having no bands, we would do well to use our best efforts to overcome this weakness if possible. The prime cause of the trouble is in the failure to cut root short lingually and to build full contour. The sharp attenuated lingual projection of porcelain has but little strength and is very likely to break off. Fig. 4 shows the proper contour.

Fig. 5 shows the root preparation for exceedingly short crowns. The root in these cases is cut off below the gum as far as possible and then hollowed out labio-lingually to permit placing pins lower and thereby increasing thickness of porcelain over pins and a greater bulk throughout. Fig. 6 shows facing fitted to place and the pins bent in around post.

All crowns without bonds should be set with gutta percha and porcelain crowns of every description are better set with this material.

In the crowns described above it will be remembered the base is to be trimmed to continuity with root when setting. This is easily and accurately done by stoning off excess gutta percha and crown to outline of end of root in gutta percha when making the final adjustment.

(To be continued.)

## OPERATIVE DENTISTRY.

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry Chicago College of Dental Surgery.

## CHAPTER XII.

## CONTINUATION OF CAVITY PREPARATION.

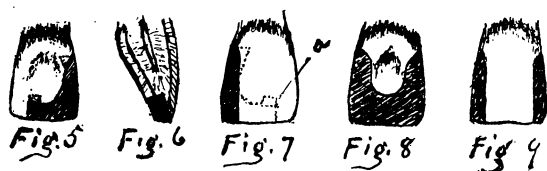
Keeping in mind the fact that these papers are written as helpful (possibly) to practitioners rather to students, we do not deem it necessary to go into all the detail and minutia that would be essential in a text for beginners. The idea is to give the methods of preparation of cavities according to the best authorities and in a way that appeals to our reasoning sensibilities as the correct way; and also as experience has taught to be correct. Experience is the best of teachers; and when failures have been apparent in methods of old school doctrines and practice, thoughtful men, masters of their art, have studied out and devised better ways. These ways in many instances, as has before been said, involve the heroic cutting away of and into sound tissue in some cases to enable us to replace with a body of gold sufficient to give strength. The main thought in older methods was the conservation of the natural tissues, and in consequence large contours and restorations were, too often, but weakly, anchored.

Preservation of a tooth is, of course, the first consideration; conservation of some part and aesthetic and artistic effect coming after. If, for instance, we conserve the incisal angle of an anterior tooth that has been weakened by decay, we may, for the time, have a better aesthetic effect than when chipped off and replaced with gold; but we have not done the best in the way of preservation, perhaps, for usually the angle splits off and the filling ordinarily has to be done over. We and our patient are often reluctant to have the corner chiseled off, and if its conformation is of a character and strength to hold out for several years, apparently, we may be justified in conserving with the understanding that at some future day it may give way. If it does last several years it may repay the conservatism.

When a filling is brought down to the incisal edge in restoration of the shape of the tooth, it is, of course, subjected to the same strain and wear and tear as did the tooth in its normal state. Un-

less anchored with considerable firmness near the incisal edge as well as at the base, it is liable to be dislodged. And even when exceptionally well anchored at the base, it is liable to be started off enough at the edge to allow the germs of decay to get in behind it. The old method used to be to get a small—necessarily small—anchorage pit in the dentine just at the junction of the lingual and labial plates of enamel, and this is the practice still with some operators, and especially when the thickness of the tooth at that point will permit. At best it is weak and often gives way. The difficulty of carrying gold into and adapting it firmly in such a recess makes it a weak spot, too, as regards recurrence of decay at that point.

The most approved and the strongest incisal anchorage that may be secured is that obtained lingually by cutting away the labial



enamel plate pretty freely and usually nearly across the tooth to make a step terminating in a slight pit. Figure 5 gives an illustration of the lingual aspect with filling in place and dotted lines showing the extent of cavity that the gold does not show.

Figure 6 is a view of a section through the tooth and the incisal portion of the filling. It will be noted that the enamel rods at the incisal edge run so that a slight beveling of the inner edge in forming our step takes off short rods, leaving the rest of that enamel plate in good condition to protect by gold coming down only to edge and not showing below. If those rods ran obliquely in the opposite direction we would simply be obliged to protect the end in a way that would have to show.

The labial aspect of a filling is shown in Fig. 7, with dotted lines to indicate the shape of the cavity. By the pit at *a* Fig. 7, an anchorage is made that resists any strain that might, without it, force the filling out. Of course, the extent to which gold shows in such filling is governed by how much of the enamel in front is broken down to begin with.

It is not only a self-evident correct mechanical principle, but also

a fact established by experience, that this class of fillings, anchored in this way (other essentials to making a good filling also enforced) makes about as strong a piece of work as can be secured in gold. It frequently happens that both sides of a tooth must be filled to the incisal edge. We follow out the same principle in cutting away lingually clear across the incisal edge and without the pit at *a* Fig. 7. The appearance of such a filling is shown lingually in Fig. 8 and labially in Fig. 9, with some of the cavity outlines shown in dotted lines.

In the earlier efforts at this incisal step anchorage, it was deemed essential to protect the entire edge of tooth by bringing a strong layer of gold over it. This necessitated cutting away the enamel plate to the extent that gold was to be added, making each tooth so handled conspicuous with its metallic tip as a copper toed shoe. Some operators still follow that course, but a study of the direction of the enamel rods at that part of a tooth indicates no necessity for so doing, if the rest of the work is properly done; hence aesthetics need not be offended in that way. Of course when enamel is defective along the cutting edge it may of necessity have to be cut away and restored in gold. It sometimes happens, however, that incisors notched and damaged at the cutting edge may be disked-off to evenness, shortening the teeth slightly without detriment, the appearance being even better shortened. In that case we would avoid a show of gold along the edge. In fact, many incisors may be disked across their incisal edges with benefit and improvement, and especially so when they are already worn and chipped. Nature wears them down, and often teeth that do not occlude or antagonize would be bettered for grinding off to a reasonable extent.

When the pulp of anterior tooth is dead, as we occasionally find, a post may be set firmly into the root and extending into the cavity far enough, by building our gold firmly around it to give exceptionally strong anchorage, the incisal anchorage, of course, is not much needed. Every dentist knows that, but they do not always comprehend or realize that the post must be a firm fixture in the root or it is not much good. It must fit against the walls of the root and not depend alone on cement to hold it in. It must be fitted to hold firm and good without cement. Screwing in is not necessary, but may be firm; but if the part extending into the cavity is threaded it takes pretty careful painstaking work to pack gold closely around it, and the gold must be firm there or if not well condensed the fill-

ing may be made to yield without any yielding of the post; hence the post in such a case is of little value. The author prefers a post smooth at that point for the reason that the plugger points may slide along its sides in placing the gold and condense it very hard close up to it. The pin should be very firm in the filling as well as in the root.

It sometimes happens that we find a defect in the lingual fossa of an incisor and especially in the laterals that merges into the proximal decay so that the two, if not connected, have to be so done by a channel. In such cases sufficient anchorage may sometimes be secured to make unnecessary the step near incisal. In fact a step, so to speak, lingually near the base, and another near the incisal edge would not leave very much of the lingual plate of enamel. A filling anchored over in the fossa would present an appearance, lingually, like Fig. 10.

Again, we may find it advisable in some cases to anchor more in



Fig. 10



Fig. 11

the central portion of the lingual surface, as shown in Fig. 11, but we cannot go deeply into the tooth at that point without coming too closely to the broad area of the pulp, and so it is, as a rule, better to get the anchorage near the incisal edge as first described.

In the light of later-day understanding, at least among many of the foremost men in operative dental work, porcelain inlays would stand superior to gold in the repair of these anterior teeth, and the author from his own experience has no hesitancy in advocating them if when undertaken they are done properly. Any man who can make a nice contour gold filling ought to be able to make a very creditable inlay if he has an outfit. I am not going into a description of the making of inlays at this time, but have this to say, that an average porcelain inlay set with a good cement under favorable conditions (exclusion of moisture for one-half an hour) is far superior to any average gold filling, for the reason that an average filling is not a good filling. A good filling will preserve teeth—

will prevent recurrence of decay. An average filling generally stays in awhile and may or may not check decay, and sooner or later has to be done over. The average inlay stays in well, and preserves and does not offend the aesthetic eye as does gold. People of refined tastes are demanding porcelain inlays and abominating the glitter of gold in the mouth, and surely we ought to be up to the demands.

The preparation of cavity for an inlay, in place of gold shown in

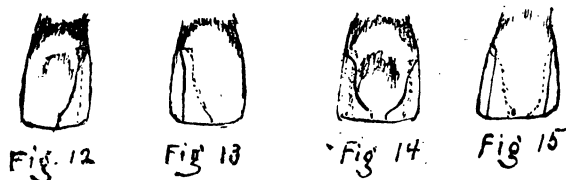


Fig. 5, would be about as shown in Fig. 12, lingual aspect. The dotted lines show about how large the inlay appears labially, or as in Fig. 13.

The gold fillings represented in Figs. 8 and 9, done in porcelain would appear something like Figs. 14 and 15.

In some bad cases of decay an inlay may with advantage be made clear across the tooth lingually, same as Nos. 8 and 9 show in gold.

With restorations done in porcelain we have (with its cement backing) something that adheres to the walls of a cavity and braces up where gold does not lend much of its strength, perhaps really weakens. Frail corners will not break away from cement where they would from gold crowded against them; so it is possible to conserve more tooth structure in using inlay, for there is union of inlay, cement and tooth.

(To be continued.)



## PROSTHETIC DENTISTRY.

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## VACUUM CAVITIES AND MODEL MODIFICATIONS.

## Chapter XII.

The subject of vacuum cavities has engaged the profession for upwards of a half century, and there are still two armies in the profession, the one advocating their use, while the other as vigorously battling against the employment of the so-called "air chamber." This latter name is wrong—if the true purpose of the vacuum is obtained—since the cavity will be free from air and should be known as airless chamber. But the name has little influence on the principle involved—the primal principle under discussion is, Does the chamber assist in retaining the plate and is it of endurant value?

The majority of prosthetic operators now admit that the chamber answers only as a temporary retainer and does not aid the patient to any considerable degree after case is worn several months. This latter statement needs qualification since the durability of its purpose rests entirely upon the factor of the temperament of the patient. If the patient is of a lymphatic personality the gums, as other muscular tissues, are soft, flabby and yielding, and in these cases the chamber readily fills with the oral tissue. This is true in both upper and lower cases. But if the temperament of the wearer is motive, or mental, the entire system is founded on sterner principles or organization and the possibilities of the "airless chamber" lasting longer are evident.

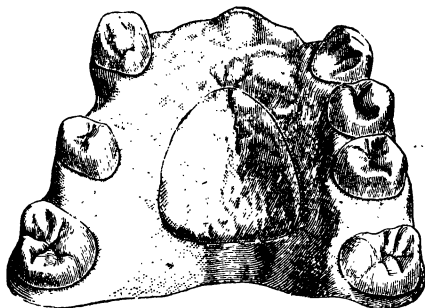
In any event the chamber should be employed in few cases, and seldom in cases where the patient has worn a denture before. The reason why many advocate its use is to assist such patrons as have never worn a denture, and by this assist in retaining the case for a brief period.

Some dentists get good results by carving from the impression a film of plaster, hence the model will be a trifle higher at this corresponding point, while other dentists use the lead pattern; this latter practice should be abandoned since it leaves sharp edges and is symbolic of inefficient workmanship. As regards bending the plate to



allow for this airless chamber, every precaution should be observed to retain the maxillary antagonism. This is best done by investing the case in plaster and marble dust, then cut through the investment to the palatal portion where chamber is wanted, and heat the case and bend plate a trifle lingually.

The subject of denture retention is founded upon the manner of denture adaptation rather than on the manner of fit. Few dentists fully comprehend that to properly adapt a denture requires a thorough knowledge of oral tissues and their disposition, hence they proceed to construct all cases on the same stereotyped plan, and when failure stares them in the face they retire from the case by the remark, "This is a very difficult case and cannot be fitted."



BAD RESULTS DUE TO USE OF AIRLESS CHAMBERS.

Now if the practitioner will recognize the importance of artistic ability he will know that if he properly sculptures the model and gets perfect adaptation he will require no such mechanical appliance as a vacuum cavity. The plate will retain itself by far more readily if adapted. In order to have the base plate or denture rest comfortably and adapt itself to the movements of the jaw during the process of eating, the plate must not ride or rest on the hard parts of the mouth, but must be close to the hard parts and rest definitely on the softer and yielding portions of the mouth. The model should be sculptured at a point between the palatal ridge and the alveolar ridge, begin directly back of the cuspid tooth and continuing to the third molar.

It would be difficult to state how this can be done to meet the requirements of all cases—each case has a peculiarity unto itself,

hence no definite rule can be formulated. However, if we trim down and sculptor all parts of the model which correspond to the soft portions of the mouth, we can be reasonably certain we have allowed for plate adaptation.

The model should also be sculptured somewhat on the labio- and bucco-alveolar portion in order to have the plate hug tightly at its margin, as thus exclude the fluids of the mouth and also to prevent small particles from dislodging the plate.

Some dentists advise cutting into the model a small groove from the right to the left maxillary tuberosity, and thus having on the finished plate a raised ridge on the distal border or pharyngeal margin of the plate. This practice should not be resorted to, since it abuses the mouth and further has but a temporary function.

Get adaptation; there lies the secret of retention.

Not many years ago a practitioner advocated that in order to get perfect retention he took all his impressions before 10 o'clock a. m. Many of us might think this unwise and unnecessary practice. But the gentleman who advocated this read a magnificent paper, in which he demonstrated that according to physiological findings the human body was smallest at early morning, and his treatise also showed considerable knowledge regarding the phenomenon of capillary attraction, all of which is worthy of our notice and deserving of further investigation.

I have found it excellent practice to place powdered rough on the mucous membrane at such points as I found the tissues soft and pliable or yielding. Then when I follow up with the plaster to get the impression the powdered rough takes to the impression material and hence marks the precise places where the mouth was soft; and then I coat these same positions with rough and ruin my model. When I deliver the model it will likewise show these relative places. Then with cow-horn scraper I remove a film of plaster at such depth as indicated by the oral tissues—i. e., if the tissues were pronouncedly soft I remove considerable, while if less so, I scrape off according.

This feature in making properly retained dentures receives too little consideration, and when we more fully comprehend the essentials of getting plaster models of true and unchanging material and recognize the value of artistic requirements in sculpturing the model, we may be more certain of satisfactory results.

(To be continued.)

## DENTAL THERAPEUTICS.

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.)

## CHAPTER XIII.

We have previously mentioned the general effects of mercury from a constitutional standpoint. It has a peculiar effect upon the human organism when the body is kept constantly in its presence; for instance, those who work in mercury mines and the manufacturers of mirrors and barometers. It has been thought to produce certain constitutional conditions through its action upon the cerebral nervous centers, but really the effects of mercury interest us only as a therapeutic agent, and it would be quite out of place to discuss at any considerable length the toxicology of this agent.

Mercury as a medicinal agent has been used most extensively in the treatment of syphilis, and during the long administration of the drug for the cure of this most dreaded disease its symptoms on the higher animals and man has been extensively observed, and its virtues highly extolled by the majority of the medical profession, still there are some who have constantly opposed its use and believed that it assists in causing the tertiary symptoms. They go so far as to admit that it will arrest the progress of the symptoms for a time, but that they will break out in a much more severe manner than they would have if no mercury had been administered. According to the clinical observations of a large majority of the very best clinicians, there are times, no doubt, when this condition seems to be true, for it has been observed that some cases of syphilis will run their course and recover without the administration of any drug while there are others, and they are very much in the majority, who are benefited by the administration of a mercurial compound.

By close observation of the literature one is favorably impressed with the idea that mercury has rendered relief in the majority of cases when properly administered. It has been administered in various ways and a great number of compounds used, and the different methods and the various compounds have strong advocates. Some claim that its effects are much more satisfactory when a weak solution is administered hypodermically, while others favor the administration by the mouth or inunction. The compounds most commonly used are the corrosive sublimate, metallic preparation, blue

pill and gray powders, or calomel. Calomel has the credit, however, of more quickly causing salivation or, more properly speaking, stomatitis. There is no question but that mercury taken internally disturbs the digestive apparatus to a very large extent, and on this account Lewin, in 1867, adopted the method of hypodermically injecting a very dilute solution of corrosive sublimate, and this treatment seems to have gained some favor in later years. It is, however, a very painful method, and consequently led to the adoption of combining morphine and in later years cocaine, both of which is a very dangerous habit owing to the danger of establishing the morphine or cocaine habit; however, it lessens the liability of the disarrangement of the digestive apparatus, and thus precludes the possibilities of so-called mercurial stomatitis. This last-named affection was thought, up to a few years ago, to be solely due to mercury being secreted by the salivary glands causing the loosening of teeth, with the varied oral manifestations accompanying this condition, but later investigation has shown that this diseased condition of the mouth is truly an infectious one and that the administration of mercury is only a predisposing cause of the oral disease.

Such forms of mercury as calomel have been extensively used because of their purgative effects; it was thought to act quite extensively on the liver, and great claims were made for its use in this direction because it would increase the secretion of bile. This action, however, has been proved to be a fallacy and no such effects are obtained. The idea doubtlessly grew out of the greenish appearance of the stools, this appearance being due to the antiseptic action of calomel in the intestine preventing the putrefactive action of bacteria in the intestinal tract, for it is now well known that a bilious condition is due to a putrefactive process in the intestinal tract instead of in the inactivity of the liver.

In this connection it should be borne in mind that mercury has but very little, if any, effect upon the unorganized ferments of digestion, but that calomel has a retarding effect upon the decomposition of food stuff by bacteria, and its action upon bacteria in this locality is considerably increased by the peristalsis of the alimentary canal. The well known antiseptic powers of the various mercurial compounds have frequently been discussed under the head of antiseptics. The preparations of mercury most universally used as surgical antiseptics are the perchloride, the cyanide, and the oxycyanide. All of these are extremely irritating to a wound and if used upon a

large surface wound constitutional poisoning of the system may be produced by the absorption of the mercurial compound. Therefore it is well to bear in mind that mercury as a metal has but very little, if any, effect upon protoplasma of the higher or lower forms of life, but that when certain compounds are made up so that the disassociation can readily take place, mercury is an extremely strong protoplasmic poisoning agent and is said to attack the so-called amido group in the protoplasma of cell life; and the therapeutic value rests principally upon three phases of disease; first, its use in syphilitic affections; second, its use as an antiseptic; and third, the use of calomel as an internal antiseptic.

Each of the various compounds of mercury has its advocate, and a knowledge of the pharmacological arrangement compiled by Cushny is a very essential thing for one who wishes to familiarize himself with the various compounds of mercury. Therefore, I will arrange them here so that those who are interested sufficiently may have an opportunity to study these various compounds.

#### PREPARATIONS.

Hydrargyri Chloridum Corrosivum (U. S. P.), Hydrargyri Perchloridum (B. P.), Corrosive Sublimate ( $\text{HgCl}_2$ ), forms heavy colorless crystals, without odor, but possessing an acrid, metallic taste, soluble in 16 parts of cold water, in 2 parts of boiling water, in 3 parts of alcohol, and in 4 parts of ether.

Liquor Hydrargyri Perchloridi (B. P.) contains 1-16 gr. in a fluid dr.  $\frac{1}{2}$ -1 fl. dr.

Corrosive sublimate is one of the most irritant of the preparations, and is rapidly absorbed. It is used internally in syphilis, 0.002-0.02 G. (1-32-1-3 gr.),<sup>1</sup> in 1 per cent solution, and is also injected hypodermically in 0.6 per cent solution, 2 c. c. (30 mins.) daily. This solution is often made up with 6 per cent of sodium chloride or urea. Perchloride of mercury is less liable to induce salivation, but disturbs the digestion more than other preparations when given internally, while its hypodermic injection is exceedingly painful. It has induced fatal poisoning in the dose of 0.18 G. (3 grs.), taken by the mouth, but in other cases much larger quantities have been recovered from.

It is used extensively in surgery as an antiseptic solution (1 in

<sup>1</sup> The B. P. gives as the dose of corrosive sublimate and the red iodide, 1-32-1-16 gr. It is stated that opium eaters can take enormous quantities without evil effects.

2,000-4,000), to disinfect the hands, and in operations involving the peritoneum, its action on steel instruments is corrosive. It is also used in the form of a soap, and to impregnate bandages, cotton-wool, gauze, catgut and silk. It preserves its antiseptic action in oils and ointments. It has been used to a limited extent in skin diseases in solution, in baths, or in ointment, as a local application in diphtheria, and as an intestinal antiseptic in putrefactive diarrhoea, typhoid fever and cholera.

The albuminate and peptonate of mercury are formed by precipitating a solution of egg albumin or of meat peptone with a 5 per cent solution of corrosive sublimate. The precipitate is collected, washed and dissolved in 20 per cent chloride of sodium solution. It was hoped that these preparations would not cause irritation and pain when injected subcutaneously, but this anticipation has not been fulfilled and they have fallen into almost complete disuse.

Hydrargyri Cyanidum (U. S. P.), mercuric cyanide ( $\text{Hg}(\text{CN})_2$ ), colorless crystals, without odor and with a bitter, metallic taste, soluble in about 12 parts of water, in 15 parts of alcohol. The cyanide resembles the perchloride in its action and has been used hypodermically in syphilis. As a surgical antiseptic it is equal to corrosive sublimate and attacks steel instruments less. Dose, same as of corrosive sublimate.

The oxycyanide of mercury ( $\text{Hg}_2\text{O}(\text{CN})_2$ ) is also used to form an antiseptic lotion in surgery. The double cyanide of mercury and zinc has been recommended by Lister for this purpose.

Hydrargyri Iodidum Rubrum (U. S. P., B. P.), red iodide of mercury, biniodide of mercury ( $\text{HgI}_2$ ), a scarlet-red, amorphous powder, tasteless and odorless, almost insoluble in water, but soluble in solution of iodide of potassium. 0.005-0.02 G. ( $1/12$ - $1/3$  gr.), (B. P.,  $1/32$ - $1/16$  gr.).

This preparation is very seldom prescribed as such, but is frequently formed by prescribing a mixture of corrosive sublimate and potassic iodide, when the iodide of mercury is formed and is kept in solution by the excess of the iodide of potash. This prescription is often indicated in the transitional period between secondary and tertiary syphilis, and even when the tertiary symptoms are fully developed.

Liquor Arseni et Hydrargyri Iodido (U. S. P., B. P. P.), Donovan's solution, contains one per cent each of arsenic iodide and red

mercuric iodide. Used as a tonic in syphilitic and other cases. 0.3-1.3 c. c. (5-20 mins.).

Unguentum Hydrargyri Iodidi Rubri (B. P.), 4 per cent.

Hydrargyri Chloridum Mite (U. S. P.), Hydrargyri Subchloridum (B. P.), mild mercurous chloride, calomel ( $\text{Hg}_2\text{Cl}_2$ ), a heavy white powder without odor or taste, insoluble in water, alcohol and ether. 0.03-0.3 G. ( $\frac{1}{2}$ -5 grs.) in powder, less suitably in pill form.

Pilulae Antimonii Composita (U. S. P.), Pitula Hydrargyri Subchloridi Composita (B. P.). See antimony, page 615.

Unguentum Hydrargyri Subchloridi (B. P.), 10 per cent.

Calomel is contained in the compound cathartic pill U. S. P. (p. 104).

Calomel is used in syphilis (dose, 0.05 G. (1 gr.) thrice daily), but is credited with being more liable to induce salivation than other preparations, and its purgative action often has to be counteracted by opium. It has also been injected subcutaneously in suspension in 10 per cent salt solution, or in liquid paraffin, but has many disadvantages compared with the soluble preparations. As a purge and intestinal disinfectant, it is of value in biliousness, and in the diarrhoea of putrefaction, less so in diseases in which the intestinal wall is the site of infection, as in typhoid fever and cholera. Calomel causes less irritation and colic than most other purges, and small doses are followed by only one evacuation. It may therefore be given where pre-existing irritation of the intestine contra-indicates the use of most other purgatives. Calomel is often advised in hepatic affections, but it is a question whether it has any effect here except as a purge. It is of great value in some forms of dropsy, especially those of cardiac origin, in which it is administered in 0.2 G. (3 gr.) doses thrice a day for 2-4 days, and is stopped as soon as the diuresis sets in. The treatment may be repeated if the dropsy returns.

Calomel has been used externally as a dusting powder for syphilitic condylomata, as a slight irritant to the cornea and as an ointment in pruritus and other skin diseases.

Hydrargyri Iodidum Flavum (U. S. P.), yellow or green iodide of mercury ( $\text{Hg}_2\text{I}_2$ ), a bright yellow amorphous powder, tasteless and odorless, insoluble in water, alcohol and ether.

It has been used in syphilis, with the idea of uniting the virtues of the iodides and of mercury. But the quantity of iodide is altogether inadequate. 0.05-0.2 G. (1-3 grs.).

Hydrargyrum Cum Creta (U. S. P., B. P.), mercury with chalk, gray powder, is formed by rubbing up metallic mercury with chalk and honey (U. S. P.) until the mercury is divided into very fine globules, each encased in chalk. It forms a light-gray, somewhat damp powder, without odor and with a sweetish taste from the honey. The mercury (38 per cent U. S. P., 33 per cent B. P.) remains in the metallic state, very little oxide being formed. It is insoluble in water, alcohol and ether, and is always prescribed in powder form. 0.1-0.5 G. (2-8 grs.).

Massa Hydrargyri (U. S. P.), mass of mercury, blue mass, blue pill, is formed from metallic mercury by rubbing it with Mel Rosae, glycerin, althaea and liquorice until the globules are invisible under a lens magnifying ten diameters. The blue mass contains about 33 per cent of mercury almost entirely in the metallic form. It is of the consistency of pills and is always prescribed in this form. 0.2-0.5 G. (3-8 grs.).

Pilula Hydrargyri, Blue Pill, the corresponding B. P. preparation is made up with confection of roses and liquorice by rubbing them with metallic mercury until the globules are no longer visible. 4-8 grs.

These preparations are very largely used as mild mercurial purgatives, the blue pill being frequently reinforced by the addition of one of the vegetable purges. The gray powder is especially adapted for children, and is of value in summer diarrhea and other similar conditions. Blue pill is often given in cardiac dropsy along with squills or digitalis, but has proved inferior to calomel as a diuretic. Gray powder is held by some authorities to be the best form for the internal treatment of syphilis, and is given in doses of 0.05 G. (1 gr.) 3 to 5 times a day; if necessary, opium may be given to prevent purging. The blue pill may also be used in syphilis and is less liable to purge.

Unguentum Hydrargyri (U. S. P., B. P.), mercurial ointment, Blue ointment, is formed by triturating metallic mercury with lard and suet and oleate of mercury until the globules are visible when magnified ten diameters. The ointment contains about one-half its weight of metallic mercury along with the small proportion of oleate.

Unguentum Hydrargyri Compositum (B. P.) contains camphor and is somewhat weaker than the blue ointment.

The blue ointment is used largely in many forms of skin diseases, especially in those of syphilitic origin, and was formerly the ordi-



nary treatment for scabies, however it has been supplanted by balsam of Peru and other remedies, though it is still used occasionally to destroy pediculi. The most important purpose for which blue ointment is applied at the present time is the treatment of syphilis by inunction. For this purpose 2-4 G. ( $\frac{1}{2}$ -1 dr.) is rubbed in daily in different parts of the body, in order to avoid the irritation induced by applying it repeatedly to one spot. A warm bath is taken first, and the patient then rubs in the ointment on the inside of the thighs, next day on the inside of the arms, on the following days on the forearms, legs, abdomen and back, returning to the thighs on the seventh day and repeating the series. The treatment is continued for a fortnight or three weeks. This method has the advantage that the digestion is less affected than when the drug is given internally, but, on the other hand, mercury is more slowly absorbed than by other methods; and no estimate of the quantity really taken up can be formed, as, although the patient is directed to rub it in until the whole disappears, the instructions may be imperfectly carried out. Salivation is not so readily produced as by the administration per os, but, when it occurs, it lasts longer and may become severe. One case of fatal poisoning has been recorded from the application of the ointment, but in this case the skin appears to have been broken. Skin rashes are more frequent from inunction than from any other method of application, and, finally, the method is extremely inconvenient and dirty. The patient ought to carry out the inunction himself, for any other person doing so may acquire chronic poisoning from absorption through the hands, and even if this is prevented by the use of gloves of India-rubber or oiled bladder, some mercury may be absorbed by the lungs. In children the ointment is often applied by spreading it on a bandage, which is then applied around the waist. In skin disease and in very hirsute individuals, the inunction treatment is impossible.

Blue ointment diluted with oil, *oleum cinereum*, has been injected hypodermically, or into the muscles in the treatment of syphilis, but this method of treatment is even inferior to the injection of calomel, and in a large number of cases gives rise to the abscesses, and gangrenous sores.

*Oleatum Hydrargyri* (U. S. P.), *Hydrargyri Oleas* (B. P.), oleate of mercury, has been used for the same purpose as mercury ointment, but is somewhat more irritant and possesses no compensating virtues.

Unguentum Hydrargyri Oleatis (B. P.), 1 part in 4.

Emplastrum Hydrargyri (U. S. P., B. P.), mercury plaster, is formed in the same way as the ointment by the trituration of metallic mercury.

Emplastrum Ammoniaci cum Hydrargyro (U. S. P., B. P.) is similarly formed, but contains less mercury and a large quantity of a gum-resin (ammoniac).

These plasters are sometimes applied to chancres and to syphilitic ulcers, and mercury plaster has been applied instead of the ointment as a treatment of syphilis.

Linimentum Hydrargyri (B. P.).

Hydrargyri Oxidum Flavum (U. S. P., B. P.), yellow mercuric oxide.

Hydrargyri Oxidum Rubrum (U. S. P., B. P.), red mercuric oxide.

Unguentum Hydrargyri Oxidi Flavi (U. S. P. 10 per cent, B. P. 2 per cent).

Unguentum Hydrargyri Oxidi Rubri (U. S. P., B. P.), 10 per cent.

The two oxides are identical in constitution ( $\text{HgO}$ ), but the yellow is obtained by precipitation from the perchloride, the red by oxidation of the metal by means of nitric acid. The red is crystalline, the yellow amorphous, and both are practically insoluble in water and alcohol, but are soluble in acids. The red oxide is more irritant than the yellow on account of its crystalline form, and perhaps also because it often contains some nitrate. The yellow oxide is used in ointment in various diseases of the eye, and both are employed as applications to syphilitic sores, condylomata, and chancres, although the red is often preferred for this purpose. They have also been proposed for hypodermic injection suspended in water.

The famous preparations of mercury are the black and the yellow wash, the former prepared from calomel, the latter from corrosive sublimate by the action of lime water. The black wash, Lotio Hydrargyri Nigra (B. P.), contains mercurous oxide ( $\text{Hg}_2\text{O}$ ), the yellow, Lotio Hydrargyri Flava (B. P.), mercuric oxide ( $\text{HgO}$ ). The oxides are in both cases insoluble and the lotions have to be shaken before application. They are used in syphilitic lesions as local remedies.

Hydrargyrum Ammoniatum (U. S. P., B. P.), mercuric ammonium chloride, white precipitate ( $\text{NH}_2\text{HgCl}$ ), is formed by pre-

precipitating corrosive sublimate with ammonia, and is a white, amorphous powder, without odor and with an earthy, metallic taste, almost insoluble in water and alcohol.

Unguentum Hydrargyri Ammoniati (U. S. P., B. P.), 10 per cent.

The white precipitate is not used internally, and is more irritant than the oxidés. The ointment is occasionally applied in skin diseases and to destroy parasites.

Hydrargyri Subsulphas Flavus (U. S. P.), basic mercuric subsulphate, Turpeth mineral ( $\text{Hg}(\text{HgO})_2\text{SO}_4$ ), forms a heavy, lemon colored powder, odorless and almost tasteless, practically insoluble in water and alcohol.

The sulphate is scarcely used in medicine at the present day. It was at one time recommended as an emetic in croup, as it irritates the stomach, but it is extremely dangerous to use it in this way.

Liquor Hydrargyri Nitratis (U. S. P., B. P.), solution of mercuric nitrate, contains about 60 per cent of the nitrate ( $\text{Hg}(\text{NO}_3)_2$ ) along with about 11 per cent of free nitric acid. It is a powerful corrosive fluid which is used to cauterize the os uteri, cancers or condylomata. Symptoms of mercury poisoning have arisen from its application to the os uteri.

Unguentum Hydrargyri Nitratis (U. S. P., B. P.), citrine ointment is used, diluted with oil or lard, in conjunctivitis, and also as an application to syphilitic sores and gangrenous ulcers.

Unguentum Hydrargyri Citratis Dilutum (B. P.).

Hydrargyrum (U. S. P., B. P.), metallic mercury, is not used in therapeutics at the present time. It was formerly employed in cases of intestinal obstruction in large quantities (up to a pound or more) in order to drag the intestines into place by its weight. As a general rule, no symptoms of poisoning occurred, the mercury being voided unchanged and unabsorbed, but in some cases salivation followed its use.

A large number of new preparations of mercury have been introduced of late years and have received a more or less extensive trial, but have seldom been found to be superior to the older forms. Among these may be mentioned the tannate, which was introduced in the hope that it would cause less purgation than calomel, and might therefore be better adapted for the treatment of syphilis. 0.1-3 G. (2-5 grs.) in powder. The carbolate, salicylate (either neutral or basic), benzoate, sozoidolate, thymol-acetate and many other similar compounds have been used instead of calomel for hypodermic

or intramuscular injection, have each in succession been blazoned forth as the best preparation, and will probably be forgotten in the course of a few years. Several amido acid salts of mercury, such as the formamide, the amido-propionate (alanin mercury) and the succinimide, have been proposed as substitutes for corrosive sublimate in hypodermic injection. It was believed that the affinity of mercury for nitrogen being satisfied in these compounds, it would attack the proteids less, and, as a matter of fact, the injections are said to be less painful than those of corrosive sublimate. Freser has recently proposed mercuric-potassic hyposulphite, because the mercury is apparently contained in it in a form which does not admit of its disassociation. Colloid mercury has been suggested for inunction instead of the blue ointment.

(To be continued.)



# ORIGINAL CONTRIBUTIONS

## PORCELAIN INLAYS.

(By J. M. Thompson, D. D. S., Detroit.)

### CHAPTER V.

To restore to perfect color and contour an incisor, the cutting edge of which has been broken, is not the most difficult task performed by the porcelain worker; but to make it stay after it is made is the problem that bothers.

Every case is a law unto itself and results depend largely upon one's ability to adapt principles already associated with such work and supply, if necessary, new and original ones. Those who are familiar with the most of the literature relating to porcelain, which has been so abundant of late, have without doubt noted a decided difference of opinion regarding the use of pins for retention. It is generally conceded that while pins may help to make an inlay more secure (in the cavity) as far as the inlay itself is concerned, it is considerably weakened. This is, of course, due to the fact that fractures are more liable to occur at or near the location of the pin. Recognizing this to be the case, the writer is convinced that, if used at all, pins should be permanently placed in the tooth and the matrix formed over them, thus relieving the porcelain of its tendency to check during the several bakings, which are sometimes necessary.

The staple as a means of retention has been in use for a number of years, but that also has its element of weakness, as it must be cemented into place, and, like everything else, is liable to get loose. To overcome this point of weakness the writer has substituted a threaded L pin, as shown in Fig. 1. Two of these set in the prepared end of the tooth, as shown in Fig. 1, form a staple which is reliable and over which platinum may be easily burnished. In cases where there is considerable space between the wire and the tooth it is always best to fit in a little gutta percha or temporary stopping, which will prevent any undercuts from being formed which might hinder the removal of the matrix.

Setting the screws is not an easy task, as the utmost accuracy must govern every step. The size of the drill used in making the hole for the threaded pin must be in perfect accord with the size of the tap to be used in preparing the reception of the pin. The pin, after being carefully measured, should be a trifle shorter than the hole is deep—thus assuring plenty of room for the final adjustment of the extensions. Round, square or three-cornered wire may be used and the screws may be set with or without cement. Without regard to the original shape of the wire, the extensions should be made V shape on the side next to the tooth and slightly rounding on the outer. This forms a dove-tailed space for retention cement, consequently giving greater strength to the inlay.

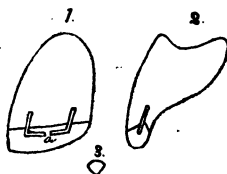


FIG. A.

In preparing the end of the tooth one is, of course, governed at all times by the existing conditions. Some teeth, for instance those that meet edge to edge, may be ground to a perfectly flat surface, and the staple made the principal means of attachment. Others, such as Fig. 2, may care for a step-like preparation, thus obtaining greater resistance and strength.

In coloring these restorations it is better to have them a trifle dark than a shade lighter, because while they may appear to be perfect when the mouth is open so that all the teeth may be seen, they sometimes look too light when partially exposed, as in laughing or talking.



## TOOTHsome TOPICS.

(By R. B. Tuller,)

No. 9.

YOU.

Yes, you.

You are the man.

You know you are.

You needn't sidestep.

And you needn't pepper up and show indignation.

You think others don't know it, but they do.

I've known all about it, and I'm simply telling you to your face.

Oh (to be slangy), we are all onto you. You're a good deal of a four-flusher.

Oho, don't know anything about four-flushing? That's pretty good; a little of it right now.

You are holding up four cards most of the time, to which you drew one and you try to make us think you filled, have two pair, four of a kind or a full flush.

We diagnose your hand right along as no more or less than a bobtail. It takes a pretty shrewd man to play the great American game and not let his countenance reflect something of his hand.

But you have got nerve to be backing up your four flush in your profession so hard; and it is a wonder that your bluff is not called oftener.

When you get up in meeting you are the sincerest thing that ever talked. "If there is anything I love on earth more than another, next to my family, my wife and my children, it is *my profession*."

I've heard you say that a hundred times, more or less, and it is always a pathetic scene and wins applause—from those who don't know you. I can see now the tear glistening in your eye, and almost ready to flow down your cheek. I can see you hesitate, clear your throat and use your handkerchief. I can hear your voice tremble with emotion.

And from the pathetic you flim-flam to the melodramatic, and with scathing tones you denounce with loathing the man who don't love his profession. "If a man don't love his profession he has no business to be in it. He who is in the profession for what he can get out of it—for selfish motives only—I *despise him!*"

I heard you say that more than once. That's what you did; and your face shone with the virtue (?) glowing in you.

Bah! Let us turn the X-rays on to you for a moment. No, we don't need 'em. You are transparent enough without them. Anyone can see the hollowness of all these great pretentions. Oh, you are a good actor. It takes with some; enough for you to make good as to some of your pretentions and ambitions.

Don't you suppose we observe how you have been hopping along, riding everything in sight in fact, to hold this office and that?

Oh, how you love your profession; and the office seeks the man. Oh, yes. "Gentlemen, I do not understand why you have elected me to this high office. I can assure you I appreciate the honor of the position, but must question your wisdom (honest injun) when you could have selected any one of so many much more worthy than I."

You bet they could! You bet they could! But we're about as badly fixed in making a good selection in our societies as we are in ward politics. You know that, Dr. Lorimer.

Who am I talking to? Why, I'm talking to *you*. *Shall* I turn on the X-rays? Oh, no, it is not necessary, for a man with half an eye can see through you.

Say, did you ever have a real down-right opinion of your own that you dare express right out square toed without having it tempered with policy?

Don't you feel of the situation and take good care not to go against the popular tide?

Lord! how I've seen you side-step to get in line. How I've seen you hold back from expressing a decided opinion until you could get the drift of the most popular current. Gee! when you felt sure about that, how you would jump in and splash.

Your lofty pose would get a sudden attack of lumbago if I should tell the bunch how you fetch up bad days in your practice by drifting through your books to retouch accounts, and then go out and boast of how busy you are.

You are the man who got \$5,000.00 for a bridge awhile ago. You got it, for you flashed the check before a number of friends before you banked it.

It was never banked. I happen to know. You never had over \$500.00 in bank to your credit at one time—except once.



That was when you flashed that \$850.00 check for ten gold fillings and two gold crowns.

Yes, you banked that all O. K., and it stood pat for 24 hours, and then the check you gave the patient, an old pard of yours, came in through the clearing house and you had \$850.00 minus \$700.00. A little smart change of checks.

Why, it was only last summer that you took some other man's thunder and tried to palm it off as your own.

You thought because it was a little obscure and hadn't reverberated very far from its original starting point that you could repeat and accelerate it and claim it all your own.

You thought you could flash your lightening eloquence and attract all eyes with the brilliancy, and that the thunder of your mellifluous though melodramatic tones would roll away to the confines of the land if not to distant shores.

You needn't gather a thunder cloud now on your noble (?) brow and flash your glassy glare on me. I'm calling your bluff and you know it.

You antedated your original (?) discovery about two years or so to fix it before the other fellow. You read what he said and to yourself said, "That's a good thing. That's a good thought; worthy of *me*. I ought to have thought and said it two years ago or more. Guess I will. I'll be the original McKinley man in this matter. Yes, the more I think of it now the more I said it two and a half or three years ago." (And if Bill Jones was alive you could prove it.)

But didn't Doc Longhead call your bluff? Well, of course, but then—

There's a difference of opinion on the subject now, for all that, and you have done that much. Now, like the unions, you are in a position to arbitrate.

You've got a few friends, of course, and they think as you do. Some of them think you are a crackerjack, and that's what you are, or a jackcrack, which isn't much more or much less.

Perhaps you might be called more appropriately, as the renowned Don Gallie says, not a two-spot, but a cipher with the ring rubbed out.

But you go ahead and arbitrate just the same. It will make good for you, because you've got nothing to lose, but something to gain.

Each side will name a man and those two will name a third, and they will all three get their heads together and investigate.

They will then conclude that they want to be *fair*, and that they don't want to make you or the other man sore, and so they will just divide the honors.

So there you are. Your four flush wins half the pot.

And when authorities are quoted on this matter at some future day it will be said, "Dr. Realthing says so and so, and Dr. Confiscate says so and so, which confirms Dr. Realthing, both men seemingly having studied along the same lines and thought the same thoughts, and at about the same time. It is a good thing anyway, and the profession has been enlightened and benefitted by their research."

*Their* research! Gadzook! what a world we live in!

I referred to you as Dr. Confiscate a little back and again as Dr. Lorimer, but you are the well-known Dr. G. E. Whoopemup, the only one of many just like you. I'm pretty sure I know you when I see you. The G. E. stands for Get-there Eli—Get-there Eli Whoopemup. Aren't you the inventor of amalgam fillings? And the first writer on mouth breathing and thumb sucking as a cause for irregular teeth? It is a wonder. What's that you say? You are not Dr. Whoopemup nor either of the others. It can't be possible I've made a mistake. Well, what is your name? What! John Smith? Dr. John Smith? Well, I'll be jiggered! Whoa! Back up! I've been sailing into the wrong man. I beg your pardon, Dr. Smith. *You* are all right; but where in—March is the man I'm looking for? I'd like to give him a piece of my mind for getting me mixed. Why, of course, it isn't you. Anyone can see that at a glance. Still, you do look a "leetle" like Doc Whoopemup, or someone I've seen somewhere, somehow.

(Toothsome Topics every month.)



## CITY VS. COUNTRY DENTISTS.

By G. T. Richards, D. D. S.

Some time ago while looking at the report of a society of dentists, I was much surprised and angered by the manner in which the practitioners of the small country towns are looked upon by those who practice in larger towns, though they may all be graduates of the same school.

The man whose words aroused my anger seemed to think that the city dentist was a sort of fountain from which we poor isolated cusses draw our information. For the benefit of that class of enlarged craniums, I would say that we who practice in small towns are graduates of the leading colleges in the United States, and that we have, as a rule, the most honest and intelligent class of patients. We are not heard from as often as are our city brethren, because the country dentist has something to do besides stealing and publishing someone else's ideas.

He doesn't have to advertise for his practice, keeps his office neat and attractive, pays his license fees regularly, and in time not devoted to his patients instructs the children of the schools in the care of their teeth. How many city dentists do that?

There are many wiseacres in the profession, I am sorry to say, and yet you wonder why the conventions are not more largely attended.

We are afraid to go, for fear our learned brethren, who have graduated with lower standings, may, upon our appearance, investigate our hair for specimens of timothy seed.

Brother practitioners, I am one of those whom you consider benighted dentists. I practice in a small town of six hundred inhabitants. You have ideas which would benefit us, and beneath our poor seed-burdened thatches probably there are some ideas that might help you. We constitute a large portion of the dentists of the United States, and, I repeat, are graduates of as good colleges as are you.

I enclose the histories of what, to a seed-burdened dentist, seem to be very interesting and puzzling cases:

Jan. 11, 1904, Mr. O——, a clerk, aged twenty-three, came to my office to have a pulp removed from an upper right first molar. The pulp had been dévitalized with arsenic about forty-eight hours.

I removed the temporary filling, and had removed the lingual

portion of the pulp when I noticed a slight paleness in the young man's face, but he declared that he had felt nothing and was all O. K. Upon this assurance I started to clean out the disto-buccal root, and met with resistance from the patient and the angry inquiry, "What are you doing up there? You make me sick." The blood was entirely out of his face now, and I decided to place a treatment, and dismiss the case for a time. I turned to my medicine case, and heard my patient utter a peculiar sound. I turned around and found him doubled up, his knees drawn toward his breast and his head drawn toward his back. The eyes were rolled upward, and the pupil was very much enlarged. There was absolutely no color in the face.

I picked him up and placed him flat on his back, and sent my assistant for medical aid. When I undertook to loosen his collar, vest, etc., I was met with a determined resistance, in which the young man tried to choke me. Upon the arrival of medical aid I succeeded in bringing him to understand where he was and what had happened. The patient explained that he had been dreaming that he was being wakened out of a deep sleep and didn't want to wake up.

My friend, the physician, thought that cocaine was the cause of the trouble, but upon learning of my treatment treated the case as a slight faint induced by cerebral anaemia.

Tuesday eve, Jan. 12, the patient was examined by the physician who attended him in my office the day before. His pulse, after sitting still for about five minutes, was ninety-six, but upon the application of the stethoscope to his heart the rate of beat dropped to forty-six in less than five seconds, and the same symptoms were manifested as in my office the day before. The patient would recover on the removal of the stethoscope, and would resume the symptoms upon its application.

The patient says that he suffered no pain, either in my office or in that of the physician. He is a young man of regular habits and uses no stimulants of any sort. Since the above, I have filled the lower right first molar, giving a slight amount of pain, but am unable to do more than two or three minutes' work upon the upper tooth without producing a return of the former conditions. There is one case of insanity in his mother's family. This is the only family history I can give.

Feb. 3, 1904, case two presented itself to me, the patient this time a young lady of thirteen years. Her mother brought her to me to

have a lower left first molar filled. The cavity was not large and I succeeded in removing the decay without pain, but noticed a decided pallor. Was just bringing the burr into use for completing the cavity when the same condition as in No. 1 manifested itself. I dropped the hand piece and revived the patient, when her father came in and spoke to her. After a few minutes I finished the cavity while the father stood by her. While mixing the amalgam the father went out, leaving the mother in charge of the little one. The writer endeavored to place the filling, but was again met with the same symptoms, and until the return of the father the filling could not be placed, nor could it be placed while the mother was in the operating room. Neither of these patients fear me, and both declare that I gave them no pain.

If it isn't asking too much, a poor benighted country graduate of one of the best colleges of the United States would like to hear a few comments on these cases. Remember, these patients, like myself, run chances of carrying samples of timothy, clover, oats, wheat, etc., in their hair.

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### SPRING!??

(By R. B. T.)

O, the snow! the *beautiful* snow!

So soft, so pure and so white!

Hiding the dirt and grime of the earth;

The snow that fell in the night.

As though through the winter we'd not had enough,

Like a great white blanket it fell;

And having shoveled it off about ninety-nine times,

"The beautiful" I wish was in—well,

In some place where they long for the soft, chilly stuff,

Where 'twould cool and moisten the air;

And keep down the cinders, and hot flying dust;

How I wish they had it all there.

## DR. SCHWARTZ'S ARTICLE IN THE AMERICAN DENTAL JOURNAL.

(By Emory A. Bryant, D. D. S.)

I had occasion about a year ago to call the attention of the readers of your journal to the apparent dislike of some members of the dental profession who write and read dental literature, to give proper credit in their papers to the inventors of the subject matter of their efforts in this direction. Again I am compelled to refer to the matter, inasmuch as the same thing has again occurred in the paper of Geo. W. Schwartz, M. D., D. D. S., "Clasp plate work with porcelain gum section," etc., read before the Iowa State Dental Association and published in The American Dental Journal, January number, 1904, page 52.

Again I can speak only in the highest terms of the subject matter of the paper as handled by Dr. Schwartz, and likewise of the admirable manner in which the paper is written, and I fail to understand in what manner the paper and the credit of its authorship could be impaired or its glory dimmed by also giving proper credit to the inventor of this particular style of clasp. The clasp and its attachment certainly is the only feature of this paper that is new and is the sole reason for the writing of the paper. If I had not published this feature in all its phases, both in illustrations and in detail, and have given numerous clinics upon the same in different sections of the country, amongst which was that of the famous Odontographic Society meeting at Chicago a year ago this month, I might think this to be but one of the numerous coincidents of inventions made in different sections of the country at or near the same time, this fact having occurred in two incidents in my own experience as an inventor. But this clasp has been before the dental profession for ten years, I having invented it in the office of Dr. E. S. Gaylord, in New Haven, Conn., in 1894. It was shown at the Connecticut Valley Association clinic that year, and it received the closest attention in every detail of Dr. Norman W. Kingsley, as I called to his attention its great advantages if it be used in the retention of his cleft palate appliances and devices. I call attention to this fact for the reason that Dr. R. Ottolengui of New York, who was, I believe, at that date in practice with Dr. Kingsley, has since this date, and after having been personally instructed in the details

of this clasp construction, of his own volition, without my calling his attention to this manner of using the clasp, immediately saw its value in this direction and ever since has been using the clasp in his cleft palate cases, as well as giving clinics throughout the country upon its advantages. From this it is evident that Dr. Kingsley did not grasp the situation from a mechanical standpoint, as Dr. Ottolengui did not know of it till eight years after I had called it to the attention of Dr. Kingsley. As Dr. Ottolengui took up the clasp feature as soon as he mastered its details and began its use in his practice illustrates plainly his ability to grasp and understand mechanical problems which were evidently not practiced by his preceptor. I have given clinics on this clasp before the First District Society of New York, the "Jersey Hornets," Md., and D. C. Union meetings as well as the National Association at Asheville and the Odontographic Society of Chicago. As an ending up I will quote from my paper on "Practical Bridgework," read before the Second District Dental Society of New York, published in the Items of Interest in January, 1903, and republished by the Dental Digest, February, 1903: "Combination bridge and partial plates . . . but as I need to have guides for my clasp to grasp, I also must have two abutment teeth crowned, in this case being the lower cuspids. If you are contented to use open-faced crowns on these teeth, the guides can be soldered to this, or if wedded to the show no gold idea you can cut them off, and, using my crown with the replaceable facing, or the Mason if you prefer, GET THE ENDS OF THE CLASP TO RUN IN A GROOVE INSTEAD OF UPON GUIDES." I understand from gentlemen of the profession from Chicago that Dr. George Schwartz is a man of the highest standing in his profession, and a fair as well as genial gentleman, and with this knowledge I do not write this letter in any spirit of disparagement, but with the idea that the doctor overlooked the fact that credit was due the inventor in his enthusiasm to put into the hands of his brother practitioners a device which he himself knew to be of the greatest value. It even may be a fact that he himself evolved the method as he illustrated it, and in any event I wish to compliment him upon his work, as he is the first dentist I have ever seen who has been able to use the method without personal instruction in the details of the work. I consider this clasp as important, if not more so, than any invention I have ever made and given to the profession, and without cost, if you please; I have found from personal ex-

perience in our profession that it is much easier to get condemnation for professional zeal and desire to aid your professional brothers than it is to get credit. It is difficult to find time from a busy practice to experiment and study out new things, thoughts and methods, and it is even more difficult to retain credit, or get it, for what you have done.

The worker never rests; his days are spent at the chair to obtain a living, every spare moment he delves and studies and experiments to the detriment of his health, and sometimes his family even. His nights are spent in his laboratory or his library instead of the theater and other entertainments. If he gets out doors to obtain a breath of life-giving air, it is because something compels him, and not because he is willing to take even a moment from the work which is as dear to him as his life itself. Professional jealousy, personal animosity, spite and spleen, as well as political tricks and hypocrisy, confront the worker at every point of his career. The drones of our profession usually get the "kernels" and the workers get the "chaff." Fancies and ignorance rule our politics and not facts or results. Men rise to the top of the ladder of our profession, that upon inspection of the steps by which they obtained their position, one cannot find them with a microscope. Like "footsteps in the sand," they have floated in on the tide and when the waters recede their tracks are obliterated. Life is too short to meet these conditions, and I suppose that is the reason we always wait till the worker is dead before we extol his virtues.





## SOME NEW FEATURES IN PRESSURE CATAPHORESIS.

(By R. B. Tuller, D. D. S.)

Before touching upon the new feature of this subject I wish to say that in the way of nomenclature it seems to me pressure cataphoresis is a more correct term than pressure anaesthesia. Anaesthesia is induced by the action of the medicament used and may be produced by electric infiltration or cataphoresis, or by pressure infiltration or cataphoresis. If pressure in itself exerted in or upon the contents of the dental tubules produced the anaesthetic or benumbed condition of tissue, then pressure anaesthesia would be correct. Pressure cataphoresis stands in contra-distinction to electric cataphoresis. Neither the one or the other, I take it, forces any considerable quantity of liquid into the tissues to displace a like quantity of liquid already there, but induces simply cataphoric action.

There are very few medicaments, if any, that will produce a numbing effect in tooth substance within any reasonable time by simply lying in contact or by saturating a cavity with it. The immediate surface may be affected as with something of an escharotic or caustic nature, but cutting through that layer at a stroke sensitivity is again encountered.

In this matter of pressure it is pretty generally understood, I think, that it is useless unless exerted upon our liquid or agent closely confined in contact with the tissue we desire to affect; though possibly this is not as thoroughly understood as it should be, for I am sure that not a few have supposed they were doing all that was requisite when they put a pellet of cotton saturated with cocaine into the cavity and exerted pressure directly upon that with a blunt instrument without otherwise attempting to confine it, and they wondered why it did not work.

Where a cavity of decay is so shaped that the orifice may be tightly closed by the introduction of a plug of soft, unvulcanized rubber of gutta percha following the saturated pellet of cotton and forced in with a suitable instrument, which carries all down together without escape of liquid, nothing further or better is needed. But many, in fact, most of the cavities are not so shaped, but are fissured and have broken down walls so that such a procedure is well nigh impossible; unless artificial walls are built to make a sort of well, and then, unless the substance used is firm and unyielding, it will not do. In any such case we use a good deal more

of the cocaine solution than is needed, and, escaping, it flows out around to tissue where it is liable to get us into trouble.

It is pretty generally known to the readers of THE AMERICAN DENTAL JOURNAL that I devised an instrument for the application of the medicament, for confining all that is needed—a minute quantity, and for pressing it home in all sorts of cavities that will permit of the entrance of the tip at all, without regard to the walls, whether fissured, broken or gone entirely. It will perform its work



on a flat bit of exposed dentine as well as in a cavity. I have reference now to its application to dentine for the purpose of obtunding sensitiveness rather than to an exposed pulp, for which it was especially designed and is well adapted. In this respect it is of value where the old method (a plug of rubber behind the cotton) is useless. As I have said in cases favorable to it, a plug of rubber is as good as anything to confine the medicament and in some cases it is better than anything else. But if you were to grind through the enamel of a lower central incisor, at the cutting edge, for instance, until a little line of dentine was exposed, you would hardly expect to put a cocaine saturated piece of cotton on that surface and a piece of soft rubber on top of that and get an anaesthetic result by pressure. The solution would be simply squeezed out of the cotton and go to waste.

Now, with the instrument I devised that in itself confines the liquid and holds it in contact with open ends of the dentinal tubules under hard pressure. In just such a case I have so perfectly benumbed all sensitiveness that further grinding was not painful, and, in fact, the pulp chamber was reached and pulp exposed and ground upon without pain. The case was an elongated lower central that had to be ground down, and I expected to expose the pulp. Other cases of grinding live teeth, applying cocaine to the dentine as soon as exposed, has been painlessly done. This could not be done with a bit of unvulcanized rubber in the old way, but I do not wish to be understood, as I have been sometimes, that my instrument entirely supersedes the older method in every case. I am free to say that I use the soft rubber plug whenever its use is indicated as

better, and alternate the use of my instrument with it at any point in the operation where I may deem it more efficient or more convenient. All I want is the credit due the instrument for what it has done and will do.

In May of last year I brought this instrument officially before the dental profession in a paper read before the Odontographic of Chicago, and again in June in a paper read before the State Society of Indiana at Indianapolis, but as the proceedings of neither society have yet been published in their official organs the papers have not yet appeared in print. In the meantime experimentation along this line of work has developed some new and, in my estimation, important features.

Discovering that a tooth pulp may be affected by pressure cataphoresis through a layer of dentine of considerable thickness in the bottom of a cavity, it occurred to me that the same influence ought to carry through the entire natural thickness of dentine from enamel to pulp, and that if I ignored the cavity of decay entirely, where difficulties presented to ready application there, and applied my method to a specially made small opening through the enamel at another and more convenient point of operation, I ought to succeed, though possibly taking a little longer time. An effort in that direction was a success. In fact, several in succession were all that could be desired. Pulps were quickly anaesthetized so that there was not only no pain in excavating a cavity, but the pulp itself could be entered and extirpated without pain—*absolutely* without pain.

Now, when I tried this upon every case that came along I found it would not always work so charmingly. Some teeth seemed to resist more than others, and in some I failed entirely after working more than half an hour. Every operator will, no doubt, run onto obstinate cases in this or any other method used. I've found just as obstinate cases in the use of arsenic to destroy pulps. That did not drive me to abandon arsenic, for then I did not know anything else that would serve us so well. It frequently happens that an operator on his first and even on several attempts with the pressure method may strike obstinate conditions with the result that he becomes impatient and lays the fault all to the process or the instrument. Often it is some omission or fault in the application, for, properly applied, persistence will bring most cases into subjection.

I have found that deposits of secondary dentine in one way and another, and especially that which thickens the walls of the tooth by

its irregular organization, that is, without well-defined tubuli, acts to retard our operation. And again in that form of calcic deposit that hardens the whole coronal portion of the pulp, yet terminating in live sensitive tissue in the roots, I have failed entirely with the pressure method. Of course we cannot know the nature of these secondary deposits, or if that really is the obstructing cause, unless we get into the pulp chamber, and that, where we are simply trying to obtund to excavate and fill painlessly, is what we wish to avoid. But I have got at the condition in enough of the obstinate cases to be satisfied that that is, to a great extent, the cause of our trouble when we do not succeed with the pressure method if we are sure that our manipulation has not been in any way at fault, and especially the lack of having our medicament confined securely under pressure.

Now, I realize that making special openings to gain introduction of our anaesthetic agent, an opening which must be in some way repaired afterward, may at first thought excite the apprehension and provoke the serious protests of conservative and careful operators, and properly so; but, consulting the diagram, which is here



appended, with explanations, I feel that they will agree, if the pressure method of obtunding appeals to them at all, that the system of making most of these openings that I have suggested and used in my practice with satisfactory results, does away largely with the objection to this boring into the tooth at a point a little remote from the cavity of decay. I simply plan in most cases, in molars or bicuspid, to make the special opening where there is a defect that needs filling or where the usual extension of the cavity will embrace this point of attack and thus be taken care of in the one filling. For instance, in the proximal cavities of these teeth it would perhaps be difficult often to apply the pressure method in the cavities themselves, but as we will extend these cavities occlusally, we will select our point of attack accordingly, boring a small hole in that surface; and after applying pressure cataphoresis we will extend our cavity so as to include this opening. In cuspids, if cavity is distally located, we may make our special opening where it would be advantageous to cut lingually into it for good anchorage. In the

incisors we would ordinarily utilize the lingual fossa for our opening, filling it separately. I believe we all have cases of excessive sensitivity where we would be justified in making special openings, and would have our patient's consent to do so if we had to fill each opening so made separately, and certainly if by such proceeding we could eliminate all the pain consequent upon burring and curetting. But following a plan like that outlined in the diagram, there would be little cause to hesitate except as to, possibly, cuspids and incisors.

It would perhaps be well in this connection to revert to the fact that we would, though well equipped for pressure cataphoresis, proceed in perhaps a large percentage of our operations of filling teeth as heretofore depending largely upon sharp burrs and excavators and the nerve and hardihood of our patients, since any application for obtunding usually consumes some time and calls for exercise of professional skill that should in all fairness be compensated.

In applying pressure cataphoresis to this specially made opening my procedure is as follows: Penetrate the enamel with a small drill or burr about a 32dth of an inch in diameter. Free from debris and introduce cocaine solution. Fill the opening in the tip of Tuller instrument with same and apply with pressure firmly over the opening in enamel. After a couple of minutes' pressure, test for sensitivity. It may be necessary to repeat the application several times, but in many instances two or three minutes' steady pressure will be sufficient. In some cases it may be advantageous to deepen the opening a little after first application. When it is of sufficient depth a little plug of soft rubber may be used to press in the medicament, using a blunt instrument a trifle smaller than the opening to which a few taps of the mallet may be given.

The action of the cocaine is first on the nerve fibrils in the dentinal tubules involved, and by cataphoric action goes to the pulp. When the latter is influenced all the nerve fibrils or osteoblastic prolongations extending into all parts of the tooth are affected, and the tooth is anaesthetized and devoid of feeling, hence drilling and excavating is painless.

Questions as to whether the pulp is injured by this process so that there is a possibility of trouble later are frequently asked. The only answer I can give to that is that in the ten years of so-called pressure anaesthesia practice, which quite a number of operators have carried on, there are no reports that I know of of disaster and there is no reason to presume that any will follow, the pulp seeming to recover promptly without any symptoms of disturbance.

## THE GLYCO-THYMOLINE APPLICATOR AND ITS USE IN PYORRHOEA, ABSCESED CONDITIONS AND GENERAL ORAL HYGIENE.

(By C. T. Dahlin, D. D. S., Elgin, Ill.)

In the treatment of pyorrhoea alveolaris, alveolar abscess and ulcerated conditions, we are frequently called upon to direct home treatment, supplemented to that at the office.

An inexpensive little applicator has been devised by the Kress & Owen Company for the application of Glyco-Thymoline by the patient. By inserting the fine point of this miniature syringe between the tooth and gums and socket completely filled with the antiseptic solution. This treatment is to be applied two or three times a day and the last thing before retiring, at which time the cavity is kept under the influence of the treatment for hours, while the mouth, gums and teeth are in a state of comparative quiet. The gratifying results which are obtained in these troublesome conditions by the use of this little instrument will justify any dentist in adopting it.

There is another department of oral sanitation for which I wish to commend the applicator, namely, the proper cleaning of the various forms of bridge work. The varying conditions that confront us in this work are many, and despite all ingenuity of construction, bridges are often unsatisfactory because of the difficulty and sometimes impossibility of giving to them proper care. And this is not always the fault of the patient, who may be conscientious in his efforts, but rather to the dentist in not providing the means whereby he can accomplish the end sought after. It may be said that 90 per cent of all bridges are in a greater or lesser degree unsanitary when nothing but the brush is used in maintaining its cleanliness.

It is here that the applicator will serve an excellent purpose in forcing a stream of dilute Glyco-Thymoline into the interstices and obscure places of the bridge appliance. It will be readily seen how great will be the benefit; to the patient for obvious reasons, and to the practitioner in that success will attend his efforts where otherwise failure and disrepute must certainly follow.

Under this method we maintain an aseptic condition of the mouth which makes our bridge patients a constant joy to us rather than, as frequently occurs, a cause of serious difficulty and almost constant fear for their future.—Pennsylvania Dental Times, January, 1904.

## PROCEEDINGS OF SOCIETIES

(Continued from page 124.)

PROCEEDINGS OF IOWA STATE DENTAL SOCIETY,  
HELD AT SIOUX CITY, MAY 5, 6, 7, 1903.

### WHY SOME FILLINGS FAIL.

(By W. R. Clack, D. D. S., Clear Lake, Iowa.)

You may see from the title of my paper that it is not my intention to recount to you the reasons for failure of *all* fillings (that fail), but rather let me try and interest you in "Why Some Fillings Fail." Neither shall I talk to you of the necessity of extension for prevention, correction of faulty environment, the necessity of making small contact points nor the preservation of the interproximal space.

For the Rip Van Winkles who have slept through the gentle teachings of the Mighty Black and the thunders of his most devoted disciple, Wedelstaedt, for the past decade, are not due to awaken for another ten years, I care not whether they sleep amid the ferns and brakes of the Catskill mountains or dream of Mrs. Partington and David Harum within hearing of the roar of Niagara.

I wish to speak to you only of the cause of failure of some fillings which have been made in the proximal surfaces of bicuspid and molars.

Of the many wrecks that strew the sands of failure in dentistry I believe more are due to the lack of studying stress and ignoring it than to all other causes, and especially to stress on a filling improperly seated and anchored.

Very few persons realize the amount of stress our fillings are called upon to withstand. The gingival seat of an average filling in the distal surface of a lower second bicuspid is about 2x5 millimeters. This often is subjected to a stress of 225 pounds, some men being able to show 325 pounds, on the gnathodynameter, 225 pounds on a surface 2x5 millimeters means 14,516 pounds to the square inch—2,090,304 pounds to the square foot. A square inch of white oak crushes under a mean stress of 3,470 pounds, yellow pine 4,544 pounds, and brass at 10,300 pounds, yet we expect our fillings to withstand a greater proportionate stress than oak, pine or brass. The architect who would attempt to place a load of

2,090,304 pounds to the square foot on a soft or uneven foundation or seat would be looked upon as a fool or a criminal, yet how often do we find a filling seated on a mass of decalcified dentine "squared out" with a round burr, anchored in pits, undercuts or parallel grooves in the lingual and buccal walls? Verily, my brethren, these things ought not so to be.

The foundation stone upon which G. V. Black builded his system of cavity preparation is the following rule: The gingival seat must be flat or in steps (which is equivalent) and at right angles to the long axis of the tooth and the direction of the stress.

The first move a builder makes who is going to erect a hovel or a palace is to look over the ground carefully and make some study of the conditions with which he is going to deal.



Now, let me give you another rule. It is: Never adjust the rubber dam without first carefully examining the occlusion of the teeth. In other words, "study conditions."

So important do I consider this matter that I have printed slips on the box that holds my rubber dam with this admonition, "Look at the occlusion."

Next, the builder excavates or squares out a flat, level foundation or seat on which to build—"go thou and do likewise," squaring out the gingival seat until it is at right angles to the line of stress. Then make the junction of the lingual, buccal and axial walls at right angles to that seat.

Now that you have the gingival seat ready, how are you going to retain your filling?

Experience has taught us that any form of retention that involves pits, undercuts or grooves in the lingual and buccal walls weakens the tooth and therefore such things are a delusion and a snare.

But there is the occlusal surface, in which you may cut a step and cast an anchor to windward that will not fail you when the hour of trial comes.

This step should always be cut through the enamel, and as its pulpal wall is part of the seat for the filling it should be made per-



fectly flat, and at all times it is well to have the walls parallel with the long axis of the tooth.



Include in this occlusal step all the imperfect developmental grooves which may be found in this surface, slightly round the pulpo-axial angle, where the seat joins the proximal cavity.

Now, let me call your attention to some of the reasons *why* the seat should be flat. First, if you slope the gingival seat toward the interproximal space (Fig. 1), the filling is likely to slide out of the cavity.

If toward the axial wall (Fig. 2) you weaken the seat at the enamel margin and there is a good chance for a fracture, as is there illustrated. If toward either lingual or buccal wall (Figs. 3 and 4), these walls are likely to be fractured by the stress of occlusion during the mastication of food.



The same rules hold good for the seat and walls of the step.

To assist in the retention of the filling, take a small, sharp hoe and make two or three cuts in the dentine in the lingual and buccal walls near the lingo—and bucco—gingivo—axial angles, not extending these convenient forms beyond the gingival third of the cavity. Make the same forms in the corresponding surfaces of the step. Now bevel the margin of the entire cavity.

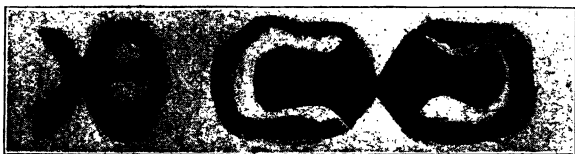
Then with the gold properly condensed you need not fear stress, and it will not often be necessary for you to have to explain to your patients "why some fillings fail."

At the close of Dr. Clack's address on "Why Some Fillings Fail" he addressed the society as follows: Permit me to call your atten-

tion to illustration No. 1. I know how this thing was, gentlemen; because this is one of the mistakes of the "old man." This was a patient of mine from Wisconsin. I have always done his work. I made this filling for him fourteen years ago. I anchored it as you



can see with a groove in either lingual and buccal wall. This man was a blacksmith and he has an occlusion of at least 275 to 300 pounds. He has other occlusal surfaces in which I made fillings at the same time. There hasn't been the slightest decay in any place in this man's mouth; he has been immune all those years. In the central incisors are fillings that I placed there twenty-seven years ago. They are in good condition yet, showing that the man is immune, and this trouble was entirely my fault. With the tremendous stress that he exerted there these lingual and buccal walls gave way with the result that you see, and here is my correcting of that condition. Going back into the occlusal surface with a flat seat in



that step and a flat seat at the gingival and making the contact point, I believe I have improved those conditions. Another case (this is not my patient) was a young lady who had lost the first lower molar on the left side. She had these fillings made with alloy, and you see the result. I have those fillings preserved. I think Dr. Finn saw them while at St. Paul lately, where these cuts were made for me. They were on sloping, uneven seats, and they depended entirely for retention and under cuts and pits with the inevitable results. This lady had an upper tooth occluding between the second bicuspid and the second molar sufficient to keep the second

molar in that position, so that I was safe in building contact points between the second and third molars. I used flat seats in both gingival and occlusal surfaces. I think in that you will see the improvement in the conditions. (Applause.)

## DISCUSSION.

Dr. Pherrin—Mr. President, Ladies and Gentlemen: I am sorry that this discussion devolves upon me; that is, the opening of the discussion. But in following Dr. Clack's paper we cannot but see the benefit that is derived from this form of anchorage. Faulty environment is the first thing in my mind that we should consider, or the conditions surrounding a case upon which we expect to operate. At the time the doctor made this filling on chart number one I imagine he was like a great many other dentists, including myself; he didn't study conditions. There was a time when that was not considered. The only idea we had was to remove the decay and fill up the hole. That was all there was to it, and I regret very much that that condition or that that idea prevails among so many of the dentists to-day. It is plain to my mind that we should work for prevention of decay, take hold of it and remedy conditions by art. We ought to see far enough ahead to know that this condition shown in chart number one should be—we should see that this would be the condition. I would have no hesitation at all to say that there can be no criticism with it, unless the point of contact should be more to the buccal surface. I would not say it would be in this case, but in the majority of cases the point of contact is more to the buccal surface of the tooth. Now in considering bicuspid and molars, environment and the study of conditions is the main point in all this work. Perhaps if the people, and I will say a few dentists, consider the amount of stress that is placed upon a filling—and they very seldom consider the amount of anchorage that they have there or the strength of their anchorage, particularly where they make a lingual and buccal groove in the enamel walls—it would occasion them no little surprise. I very often see fillings that have been placed in such a position that they have no underlying dentine whatever, and in the discussion yesterday a man said he thought it should be thus and so, because it would not show gold beneath the enamel. I make it a *rule* never to allow the gold to show through enamel, because I cut it back until the dentine supports the enamel. You need not be afraid of any discoloration of the enamel then. That is the way to avoid it. The next chart is simply a continuation or parallel case with the

first, and the admirable condition that we see in this companion chart shows us that this form of work will live to be a monument to Dr. Clack, providing the patient lives long enough. I am satisfied of that. The occlusion of teeth is another thing that is often neglected, too often. I am glad to see that so many of the operators are beginning to form their cavities with some idea of retention in the cavity, but that is going to be interfered with to a very great extent unless they watch their occlusion and the stress that is brought upon the filling. The point that they may consider a very strong retention may be found weak when they understand the occlusion; it may bring the force of occlusion in a direction that will break down what they would consider a very strong anchorage for the filling. Anchorage is not the only thing; it is the occlusion of the teeth that we must consider in the finished work. Lingual and buccal grooves should be wholly discarded and it comes to a point where we must find retention on a flat base and in the occlusal surface of these teeth that we fill, as we are only considering now in this discussion bicuspids and molars. I shall not deal with centrals or laterals or any of those teeth, as the doctor did not. But the same principle holds good in all of them. In this chart it does not matter if you do have some dentine under this wall; sometimes dentine is left there, but that does not prevent that from breaking down. This should be parallel with the line of stress. I will not say it should be perpendicular with the center of the earth, as some man anxious to criticize this work of Dr. Clack's and throw some odium upon it might say; it should be parallel with the long axis of the tooth or in the direction of the stress that is brought upon that tooth. In that tooth there very likely this enamel will break down. I believe that Dr. Clack has given us a great service in bringing this before us. I consider his paper an admirable production.

Dr. Finn—I saw these models in St. Paul lately. I think perhaps it would be of interest to know how these were made. They adjusted the rubber dam, vaselined the teeth and took an impression of the teeth with these fillings in just as they found them. Then they removed the modeling compound, removed the filling and placed in the modeling compound and then run plaster casts. Then there is a little artist up in St. Paul that paints these pictures from the models, and the imperfection in that is because of her lack of knowledge of dentistry. The contact point is in a different place.

Dr. Welch—I would like to ask if Dr. Clack made the point of

contact much wider than it is in number two in the actual filling?

Dr. Clack—I will answer the questions in my closing all at the same time.

Dr. Poston—I would like to ask in the fourth chart that where there is a filling in both teeth, what would be the harm of making the contact point broader at the occlusion and leaving plenty of interproximal space?

Dr. Faraday—I would like to ask if Dr. Clack considers it best to cause previous separation in cases.

Dr. Clack (closing discussion)—The first question, would I make the point of contact as wide as that? Is that the question?

Dr. Welch—I notice on the paper in that number there that the point of contact is much broader bucco-lingually than it is on the filling right there. I always like to have the point of contact as close to the natural tooth as is possible, retaining interproximal space thoroughly at the point of contact, and I like to have a good broad surface.

Dr. Clack—I think I understand Dr. Welch's question, and I will give you a reason that I think will be sufficient. The wider you make this embrasure, either the buccal or lingual embrasure, the more you invite the food into that embrasure. Those angles there should never be left square. You should round these slightly and invite the food to polish those margins. That is one of the principles of G. V. Black that I think can't be pounded in too hard. Extend until the food in its excursion shall cleanse the cavity margin. I believe that is the way for the prevention of the recurrence of decay, and another thing I will say—I think this is in answer to another question, but it will come in here—these are magnified forty diameters, making this appear quite large. There was a faulty condition there in the first place or decay would not have occurred. Not all teeth have perfect contact points, and for that reason we try to make contact points smaller and sharper to correct the fault. Dr. Welch was right as to the preservation of the interproximal space. If you wish to have healthy gum tissue you must preserve the integrity of the interproximal space, giving that gum a chance I call it to "cuddle down" under that protection. I think another question was, "Is the seat sufficiently wide?" That depends on your seat. If your seat is absolutely flat and at right angles with the line of stress, there is where you want to study your occlusion; see how your patient holds the closed teeth; see in what line he directs the

force. The width of those steps makes but very little difference unless you carry it in there something over three millimeters, then you are liable to have some trouble. I think with a very little practice you will have no difficulty whatever in condensing the gold with a seat that is narrow from the axial walls to the interproximal space. There is nothing to force the gold towards the interproximal space if your seat is *flat*. If I placed a flat piece of board a foot square on this floor, granting that the supports beneath were sufficient, I could pile weight on it until the ceiling was reached and there would be no tendency to slide either way so long as I kept it perpendicular with the line of stress. If I placed it on a rocking or uneven seat I would have trouble soon. Now, I was found fault with yesterday because I extended my step in the first molar that I made a filling in yesterday. I extended it so far distally. I included the transverse fissure in the distal surface of the molar. If you had studied the occlusive it would have been plain to you. There was strong occlusion there (indicating place on drawing), and if I had only cut my step to about there, there would have been a liability of its being dislodged.

Dr. Welch—The only point I had reference to in reference to the question was the fact that the occlusion of the points of contact there are entirely different from the original. As to the point of making the space larger in order that the excursions of the food over the walls would naturally keep that clear, I think most of us adhere to that principle thoroughly; possibly not as thoroughly as you do, but I have been in the habit of making the points of contact larger, and I try to come as closely as I can to the normal or original, providing it is a normal case.

Dr. Clack—I think I answered that your contact point cannot well be too small. You do not want a *contact surface*. As to previous separation, I would have previous separation if I could get it always. You may force separation in many cases; I don't say in all cases, because I know in my own mouth it is almost impossible to get separation. I have suffered from a separator, and I have had it tightened until the operator was afraid he would break the separator, and I was afraid he would break something else, but I would always have previous separation if possible, because you have a great deal better opportunity to finish the contact point, and you know then that the tooth in returning to its former position will give you the contact all right.

Voice—How about the previous separation?

Dr. Clack—In nearly all occlusal surfaces where you have occasion, if you have a cavity there you can excavate that, fill it with gutta percha and let your patient wear it weeks or months. You have the cavity pretty well protected, and the patient will come back to you without any soreness; they will have suffered almost no inconvenience and you will have a better separation. And then there are other methods, by rubber and cotton. One very ingenious little method was shown me a few years ago where the contact was so very tight that it was impossible to get rubber in between them for separation. I am speaking now of where there is no separation at all and the teeth are very tightly fixed together. A gentleman showed me the little method of passing the silk through the interproximal space and tying it up and over the occlusal, tying it as tight as possible. In two or three days you can get two or three strands of silk in there, and you will very soon be able to get quite a separation.

Dr. Woodbury—There must be knots on the thread, arn't there, to prevent it from pulling out?

Dr. Clack—Tie the ends together.

Dr. Woodbury—I know, but unless there were knots there to hold it from coming out it would come right out.

Dr. Clack—I had a condition like that between the left upper cuspid and the first bicuspid that I don't believe a man could have got silk through in an hour. Two or three spools were used up in trying to force it through there, and I got the separation by this method with a very little trouble. I think Dr. Jones, who just came in, is the man who passed the silk through there and tied it for me. Where the space is sufficiently wide you have gutta percha and rubber and even cotton.

Dr. Conover—I would like to ask Dr. Clack for information in regard to the separation by gutta-percha. I understood him to say you could pack gutta-percha between the teeth and leave it months or indefinitely, as it is a great preserver. It will separate them beautifully, but is it well to leave it for that length of time? As I understand it, it would cause pressure on either side and move all the teeth in an opposite direction from the gutta-percha plug. If you hold it there indefinitely the part that is absorbed or torn down by the pressure is also being rebuilt on the opposite side of the tooth and filled in and becomes a permanent fixture the same as a tooth that is moved

with regulating appliances, and I would ask if he really thinks it is advisable to leave the gutta-percha indefinitely in that way. Will the tooth come back to its normal position and be as firm as if it were allowed to come back at first? It is necessarily moved to the side away from the stress, and the side of the greatest stress is filled in.

Dr. Clack—I would say in response to that that it is only necessary to leave it there until you have gotten the separation, but some teeth will separate so slowly that you are obliged to leave it there longer, and while that gradual separation is going on you need not fear that condition that Dr. Conover speaks of. When you have gotten the separation that you wish, then make your filling.

Dr. Conover—That is as I understand it, only I understood him to say that he would leave it indefinitely. I understand the rest of it. But if gutta-percha was in there for, say, six months, it would increase the separation to some extent, then would there be any injury from it to the occlusion, if filled so as to have the separation made permanent?

Dr. Clack—The doctor's point is rightly taken. There would be no harm come from a separation in most of those cases, because where there is decay in the proximal surfaces of those teeth they almost always telescope somewhat; they move a little nearer together, and there is but very little danger of your getting too much space.

Dr. Welch—I think, referring to the question the doctor asked in regard to separating the teeth, if you had separated them even too much and left the separating material in between them for a month or two months, and that the bone had already formed around the roots of the tooth, that the natural lines of occlusion would naturally bring the teeth back into their normal position after the fillings were made, just the same as in regulating teeth at times. We will move a tooth sometimes a considerable distance and treat it, and soon, to our sorrow, we find after we have retained it there for months that way the force of occlusion is forcing the tooth back into its normal position, and I think that would be true in the occlusion of normal teeth.

President Bandy—Dr. Brady said at the Cedar Rapids meeting that it had been his experience in the regulation of teeth that he had been at fault a great many years in believing that there was a filling of bony tissue where there had been separation. That it was



simply a stretching and always if time was given relaxation will take place. It is a stretching of the bone. Whether there is such a thing as the filling in of the bone where the separation or moving of the teeth has taken place, there is a question. That will perhaps answer your question somewhat and also the question about the occlusion driving the teeth back to place.

Dr. Welch—It is not in answer to my question, but it corrects a statement that I made. That is the point.

Dr. Pherrin—That is somewhat along the line that I had in mind. There is one item we have dodged all of the time in this discussion, and that is the yellow elastic fiber or gum and the socket in which the tooth is placed and which it grows into. I have, for example, the case now of a little girl eleven years of age. In a fall the left lateral and the right central were knocked completely out of the mouth and the left central was driven up through the labial plate or process into the left nasal passage. I didn't see the case for nearly a week. I attempted to draw that central down and it seemed to be a very easy matter. But imagine my surprise when I drew it down and it flew back as if there was a rubber band attached to it; and I have had some difficulty in maintaining that tooth in its normal position on account, I think, entirely of its attachment to the gum, and that is a fact we should not lose sight of. I think ordinarily three or four weeks' separation is well and oftentimes two months and even longer than that is not too much. I know cases where there is no harm done. It is well to get a good separation.

Dr. Crandall—Just one word of caution I think is necessary concerning the use of gutta-percha as separating material. We want to separate those teeth mesio-distally, and the gutta-percha expands in all directions; where it is packed in we have to use a great deal of caution to see that it does not impinge upon the gum. I have two teeth in my mouth now that are being separated, and it has been in there three or four months, and it is now impinging on the gum and is causing some absorption, I fear, of the process, and I want to add a word of caution that we must not let it go too long.

Dr. Woodbury—One more word; I think that the cavity should be prepared as thoroughly as possible, because in my experience the tooth is too sensitive, and it is almost impossible to carry on any further operations on account of the hypersensitiveness of the cavity when the gutta-percha is taken out.

Dr. Conover—I would like to ask a little farther. He spoke of the

central being driven up under the labial plate of its flying back. I believe that the president and this gentleman said that they believed that there was no displacing of osseous tissue when a tooth was moved from its position. If that is a fact, I would like to ask how he expects the central to stay in position when it has a rubber band on, when there is no osseous tissue to hold it there.

Dr. Pherrin—I believe at the age of eleven years there is a displacement of bone. Neither the president nor myself said that there was no displacement of bone, but there comes a time—and we sometimes have patients beyond the age of eleven years—where we desire to accomplish the separation. There, I believe, is not very much displacement of bone, but there is at eleven years of age; until that age and even later there is an absorption of soft bone. In the case of this little girl it was owing to the elastic tissue that that action took place, I think. I think there is no harm that comes from separation of teeth of our young patients, if we would separate them so the point of contact is moved three millimeters, say. I believe the doctor suggested something in regard to the force of occlusion that will bring those teeth together. Nature arranges it so that the occlusion does that. There are certain cusps which direct these teeth into place.

Dr. Welch—I would like to ask the doctor a question. Probably I misunderstood his remark about the tooth with the rubber band on it, but I understood the doctor to say the anterior plate of the superior maxillary, the plate had broken in with the tooth, or did the tooth go up through the socket?

Dr. Pherrin—The bone was driven up within. Since I attached the appliance for bringing it back into place the force seems to have been cut off.

President Bandy—I will consider the discussion closed, as it is wandering away from the real meaning of the paper. The next topic is by William Finn of Cedar Rapids, an illustrated talk on porcelain crowns and the urgent need of more care in preparing broken down roots.

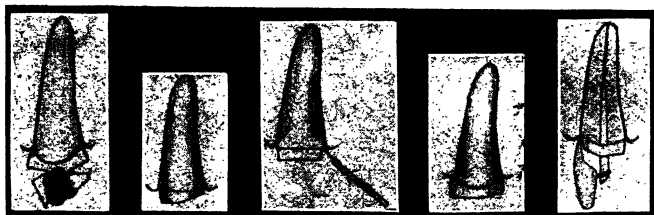
AN ILLUSTRATED TALK BY DR. FINN OF CEDAR RAPIDS ON PORCELAIN CROWNS AND THE URGENT NEED OF MORE CARE IN PREPARING BROKEN-DOWN ROOTS.

The only excuse I have for coming before this society with this illustrated talk is that I find about nine out of every ten know nothing of porcelain work. I have prepared the charts in a very simple manner, and I think they will start some of you on the right track. I will just describe in a brief way the preparation of roots and crowns and try to show simple methods. When I find any single rooted teeth that are broken down so that they should be crowned, I start by cutting grooves across with the thin disk (Fig. 1), then take a burr and pass it from one groove to the other, breaking the tooth off. I prefer that to the excising forceps after the grooves are made, because I think the forceps frighten the patient. The next chart shows the crown broken off ready for the enamel cleavers (Fig. 2). I have some enamel cleavers with me that I will pass around; they are the Prothero, Johnson and Case. In cutting this root off I leave quite a portion of the root from the gum, so that I can fit my band and not injure the membrane. I take all the enamel off, and the labial plate of this particular crown I slant a great deal; I don't care how much, the more the better. Then I take my measurement, and you will see that I pass my wire only part way up on the beveled root (Fig. 3). Then when I make my band I am sure that I have a very snug fit, and when I drive the band up there it will tighten it and not injure the membrane. I twist the wire up, cut it in two and make the band the same length. Then I solder it with platinum solder twenty-five per cent. I use the lapped joint because all metals will expand just a little bit in soldering, and if you have an end to end band it will open, especially in platinum. I then take my band, trim it to the gingival, and place it on the root longer than is really necessary. After I have them perfectly fitted I cut both the root and the band down at the same time while it is in the mouth (Fig. 4). I then take the band off and solder the bottom, on which makes the cope, trim it and place it back on the root, bore a round hole where the root canal is. Then drive a square post into the root, remove cope and post and solder with platinum solder. After that step is taken I place both the post and band in the mouth, and take an impression. Then run a model post and band same

way in model. This porcelain facing is ground so that it stands up over the labial plate or band, and also on top and sometimes at the top (Fig. 5); solder the pin, and then it is ready for the fusing of the porcelain body.

President Bandy—Right there—do you invest this to solder it?

Dr. Finn—Yes; I invest this to solder the pins. I find that most all the bubbling is caused by moisture in the porcelain body, and you can tap this until you have no moisture coming to the surface. I solder these pins to the post with pure gold. I do not use the platinum for that, on account of having to use such a high heat; it



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is apt to bleach the facing. And, by the way, I might say that I always use Consolidated facings for this work. I have been in the habit of finishing crowns with the Consolidated, high fusing inlay body, which will give a better and more polished surface. This chart shows a finished porcelain crown, with the labial plate of band covered (Fig. 6). There is no use coving the lingual portion of the band; it does not show and it will only break off if you do.

President Bandy—What gauge of platinum do you use for the band?

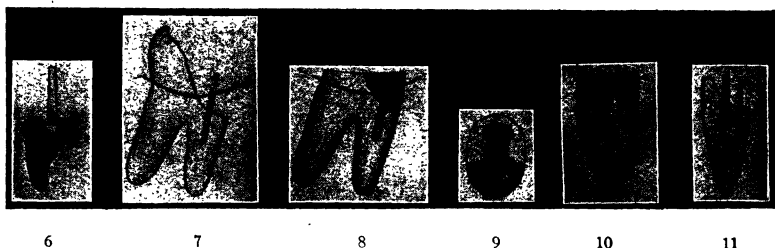
Dr. Finn—Twenty-eight. I would like to have anybody ask questions as we go along.

Dr. Welch—Why should porcelain break off around the edge when it does not on the labial?

Dr. Finn—Why, the facing is of much better material, because it is made of pressed porcelain body. They have a way of pressing the facings as they are made now, and that is quite thick there. As I said, I don't care how much of the labial plate is taken away; the more the better, because you will have more body at that point. Any other questions?

Dr. Crandall—In regard to platinum solder, what is the necessity of using platinum solder? You can't fuse platinum.

Dr. Finn—Twenty-five per cent platinum solder contains seventy-five per cent pure gold; the twenty-five per cent in that solder acts as a base, and that helps to bridge the gold over wider spaces, leaving small atoms of platinum in joints, which makes a more homogeneous joint. You can drive pure gold right into platinum by heat, and if your platinum joint is not in contact, pure gold will not solder that joint if you make the platinum absorb the gold; but if you use platinum solder it will close the joint because it contains platinum of itself.



Dr. Pherrin—The question is as to the fusing qualities. I am sorry Dr. Hunt is not in the room. I think that he would make this so clear to us that we would never forget it.

Dr. Taylor—I would like to ask Dr. Finn if he always takes the impression with the pin and band on the root.

Dr. Finn—Yes, sir.

Dr. Taylor—Well, I get as far as that, and then I adjust the tooth to the pin in the mouth, take it off and solder it, and then go on. It saves lots of time.

Dr. Finn—Well, that might be a short method in some cases, and other cases I have studied on for some time to have the natural appearance to it.

Dr. Crandall—That is one of the beauties of fixing your facing in the mouth instead of the model. You cannot get a plaster model of a tooth as perfect, so you can match a porcelain tooth to it, like you can in the mouth. I like to grind them in there; set them with hard wax, take them off and put them in the investing material and solder them up and put them in and grind them, grind off all those little nicks.

Dr. Finn—I have never been in the habit of doing that. I know there are several men who do.

Dr. Wilhelm—I have read considerable on porcelain work. It has been said by porcelain workers that a crown made in that way, the porcelain facing having been made under pressure, when your body is adjusted by just simply laying onto the crown, that it is liable to separate at that point. Have you had any trouble like that?

Dr. Finn—I have not, but have had to break them in two, and they have broken anywhere else except at the union; if you hit them with a hammer the union seemed to be perfect. Now I am a believer that molars and bicuspsids are ideal places for porcelain crowns, especially bicuspsids, and a great many times we find a tooth decayed way below the gum. I built up that tooth by first placing in one of Howe's screw posts (Fig. 7). We will say this is a lower molar and the mesial root has two canals. We use one canal for the Howe screw posts. There is a set of taps and drill, and the posts will fit the thread that you make in the root. I first place gutta percha in there and have all the tissue away, so that I can have free access. Then I build in with amalgam like that (Fig. 8), and before I place the amalgam in I place a stick in the distal root, also one in the mesio-lingual root; then in looking at the occlusal end of the root it is something like Fig. 9. (The crosses represent the wooden pegs.) After your amalgam is hard you can dress these surfaces perfectly; that wants to be absolutely perfect, just as near as you can possibly make it, not to cause any irritation to the tissues at this point, and then your band can be made so that it just extends below the free margin. You need not mind about the band going down here at all. This is the mesial or distal surface of an upper or lower bicuspid (Fig. 10). I drill with, I think it a number one-half bur, right into the root, not into the canal, but into the side of the root perpendicularly, and have those gold anchor screw wires which has a set of taps and will force the screw down there, and you can build up with amalgam. Now if both mesial and distal surfaces of the tooth are gone, or the incisor, say, is decayed below the gum, you can place in four screws and build up with amalgam and make the band and place the little stick down in the root canal the same as I have here (Fig. 11).

Dr. Taylor—I would like to ask a question. Do you use gold screws and cover them up with amalgam?

Dr. Finn—Yes, sir.

Dr. Taylor—In five years where are your gold screws—still there?  
Dr. Finn—Still there; yes, they are. I have been at that over five years and know.

Dr. Welch—May I inquire, in making the amalgam filling I think you have overlooked the statements of Dr. Clack a few minutes ago. You have got an inclined plane in the amalgam filling of that root. Is that sufficiently strong to withstand the force?

Dr. Finn—I see you have caught me in a trap here, but, understand here, I have a gingival step that you cannot see, and this is a *flat seat* step. This is really the outside margin. You cannot see inside of the tooth. Then, another thing, doctor, I have a reinforcement here in this heavy post.

Dr. Welch—I don't hold that the heavy post is going to do much good if you have an inclined plane there.

Dr. Finn—I haven't; I have a flat base for the amalgam. Now, as to the gold anchor screw being absorbed by the mercury, you do not want to use slop for amalgam. I think, Mr. President, that is all I have to say unless there are questions.

Dr. Conover—I would like to reply slightly to the doctor's question by an illustration. I happen to have quite a good many of Dr. Taylor's patients in my practice, as he has left the town I am in, and he had a practice, as a good many other operators, of building a filling up with amalgam and placing a veneer of gold on top. I have seen some of these fillings fifteen years old, and I would like to ask the doctor why the gold has not gone in these fillings if the platinum screws will go?

Dr. Taylor—The gold that was used in there was platinized gold. The platinum went next to the gold and the gold on top of the platinum.

Dr. Conover—I can't dispute that, but I have some that were not platinized gold, which were pure gold, which are all right. I never have seen any change in the screws as Dr. Finn spoke of, and I have had opportunity after a few years where extraction was necessary. I have never seen any disintegration of the screw whatever. It was solid, and, in fact, much better, because it was thoroughly amalgamated with the amalgam.

Dr. Crandall—I would like to ask Dr. Finn if he uses facings on the molar crowns?

Dr. Finn—I use both ways, but I prefer the facing.

Dr. Crandall—I have been using a method I think comes along

under this subject. I use a pinless tooth with a counter-sunk hole, and I grind the tooth so that the pinless tooth sets over the pin head and platinum cope and bake them solid in there. There I have a piece of porcelain that has been compressed and is united. I use the flat seat base. I use this for bicuspid, and "He or she, as the case may be, will sing throughout eternity your praises."

Dr. Ball—I wish to say that I have been very much pleased with Dr. Finn's illustration of this work. I think he has covered the ground quite thoroughly, and in the main I agree with his method of procedure. In the first illustration here he speaks of, after cutting labially and lingually with the disk, of using the drill. So far I never found any objection on the part of my patients to using excising forceps. I find it a little quicker, and we explain to the patient beforehand that there will be no pain, and I never have any trouble on that score. The fitting of this wire in canal, the shaping of the end of the root, removing the enamel, and this form here certainly would be proper proceeding, but in most cases I would prepare, if I had a sound root as the indications are here, the labial portion of the root perhaps a little different from what would seem in this illustration, though he may perhaps follow the same plan that I do. I would not give this as much slope as is indicated here; that is, I mean in the base of the root. I would hollow this out in this manner. I would cut this down in here, leaving perhaps the labial margin of the band showing similar to that. By so doing, I get a greater seating capacity for the porcelain body. If you cut this out in here you will have still a greater body of porcelain, and it gives more strength. This part I follow the same as he does. I use twenty-five per cent platinum solder for the same reasons that the doctor does. If you use pure gold for that work, when you come to solder this plate on you are very apt to make more of a failure of the work than with platinum, because of re-fusing of gold, and therefore I use the platinum solder in all work up to the soldering of the pins to the post. Here I think perhaps the doctor would make a little bit of a change in his practice aside from the illustration. I would bend these pins down so that they touch the floor of the coping, as near as possible doing away with this extension of the platinum post. Then you get a greater body of the porcelain baked against the facing, and it increases the strength of your work just that much. In this illustration of broken-down root I have had very few patients where I have done as extensive a restoration as



that, but certainly that method is good, and I agree with him thoroughly on that. I believe that is all.

I have never done enough porcelain work of this kind to justify making any practical remarks on the subject. I was thinking, however, in regard to the restoration of the lower tooth, I saw an illustration somewhere where someone had been making restoration by means of porcelain, burnishing or swaging a matrix, as it were, to that lost portion of the tooth and inserting the pin in the way suggested and baking the porcelain around that in that way. I can't recall how it was done—all I know is instead of restoring that with amalgam, as Dr. Finn has done, he restored it with porcelain and claimed a great deal for it. I congratulate the doctor on his drawings and on his method of illustrating this work. It seems to me it is the nicest illustration that I have ever seen of any kind, and if he did that himself he deserves to have the praise of being a great porcelain worker and also an artist. I think that is all.

Dr. C. W. Bruner—I must say that I believe that Dr. Finn has presented to us in a very admirable and clear manner this morning a subject in which we all should take a great deal of interest. I have been following the methods represented by Dr. Finn, or nearly the same methods, and I cannot help but indorse them. In reference to the soldering of the band, I would say that it has been my custom to use twenty-five per cent platinum solder, although I have used the end to end joint rather than lapping, as Dr. Finn does. I have found only in a very few instances that the joint would open. For soldering I use nitrous oxide gas in connection with my gasoline blow pipe, using nitrous oxide instead of atmospheric air. The point which Dr. Ball mentioned in reference to the uniting of the pins I think was very well taken, and Dr. Finn would probably, in his practice, endeavor to incorporate that idea also. There is one point in reference to the restoration of the amalgam which calls to mind a case in my own practice which I dealt with in another manner. It is the only case I have handled in that manner. It might be of interest to you. It is a case that I am privileged to keep daily watch of, it being in my wife's mouth. I do not know that I should have attempted a case of the kind in any other. There had been a large amalgam filling in the upper first molar tooth. The lingual root was fractured for about one-eighth of an inch, the fractured portion remaining in position at the time of the accident. I removed the fractured portion, packed the cavity with gutta-percha a few days, crowd-

ing the gum out of the way, after which I fitted a band of twenty-two karat gold, thirty-one gauge. I adjusted the band as nearly as possible to the line of fracture, fitting it around the tooth, having first removed the enamel from the buccal surface; on the mesial and distal surfaces the enamel had been removed by the process of decay. Having this band adjusted as accurately as it was possible to the line of fracture of the root, I filled it with cement through the open end of the band. This I allowed the patient to wear for several weeks, after which a gold crown was telescoped over the band. The case was undertaken with some doubt in my own mind as to the results, but it has been worn very comfortably and satisfactorily now for a period of two years. The gum seems to be in a perfectly healthy and normal condition over the lingual portion at the line of fracture. I present this case to you with no thought of criticism, nor as an improvement over Dr. Finn's method, for I fully indorse Dr. Finn's system, but at that time it had not occurred to me to use this system in the restoration. I think he has a very ingenious method indeed in the restoration of the bicuspid which is represented in the illustration, and also in number eighteen, and if he was "caught in a trap" a moment ago, he certainly got out of it very nicely by the method of anchoring in the Black step. Furthermore, I would say that the stress would not be as great upon this filling, inasmuch as it is encircled by the band and is held in position by the band as well as the post in the root. On the whole, I think Dr. Finn is deserving of great credit for the admirable manner in which he has presented this subject to us this morning. (Applause.)

Dr. Pherrin—Where the work extends below the free margin of the gum there is no operator yet I believe but what recognizes the fact that it is a very unsanitary affair to work on that portion of the tooth and get what we call free access to the root. I would like to know the method Dr. Finn uses.

Dr. Finn—I will answer Dr. Pherrin first. I pack gutta percha in there, and if there is any bleeding I take cotton and place astringent in there. In these charts you must all remember that they are exaggerated in order to show what I want them to. I am a believer in a very narrow band, just so it is a band, that is all, and extending it just under the free margin of the gum. This root is not cut below the gum anywhere. It is left long so that it will have plenty of strength. Now a word of criticism in bringing up an old subject again. Dr. Lewis cut the very strength out of his root

yesterday by shortening it and putting it up under the gum. He made it more liable to split than if he had left it longer; that is what I think. I think the strongest part of that root is right through there, and if you cut it off an eighth of an inch you are weakening the root. I make, as I say, a very narrow band. I have not measured these things at all; they are off hand drawings.

Dr. Ball—I suppose that you do use a short post, because quite often you have to bend the posts down, and I quite often get them in such a position that I have to grind a groove so that the post is right over here and there is plenty of room for your porcelain.

Dr. Finn—On that point I forgot to mention that I drilled some little bur holes in the posts, just a little bit of a hole, not through, but just a concave place, and in a crown that I took apart the other day the porcelain was still in these three or four little places, which shows that it must have some effect in holding the porcelain to the post. I use a square post because it will not twist, and they are usually stronger, I think.

Dr. Bruner—With a well-fitted band, does the doctor deem it necessary to use a square post?

Dr. Finn—It is probably not necessary, but a square post is more convenient for this reason: You drill a round hole in that cope, and in driving the post up there you have the corners to hold the post in place, where if you had a round post it would be tipping everywhere. When you remove that you have square corners that hold the post and the cope together in place. That is the reason for using the square post.

Dr. Bruner—My experience has been with square posts in getting the posts perfectly fitted to the round hole in the cap that I was not able to unite it readily with the solder.

Dr. Finn—I make a very small round hole and force the post while the cope is in the mouth—drive the post up there and it makes a very tight fit.

Dr. Bruner—What gauge of platinum do you use for the post?

Dr. Finn—I use Irido-platinum post, vary the gauge to the case, and I solder all my platinum with the oxyhydrogen blow pipe. For instance, I have used as high as three posts in one molar tooth. Now in this tooth, supposing I am able to save that tooth five or six or seven years. I think if the posts have entirely disappeared in that time that I have given my patient quite a little of comfort during that time. If I do not do it this way, what am I going to

do with it? extract it? It was Dr. Rhein of New York City, I believe, that Dr. Cook referred to a little while ago.

Dr. Cook—Yes, it was.

Dr. Finn—And then he would take out the whole root and make a porcelain root and then band it to the other root.

President Bandy—It was a table clinic before the Chicago Dental Society.

Dr. Finn—I have nothing more, I believe. I want to caution you about narrow bands and going up under the gingival. Don't do that, and use narrow bands.

Dr. Welch—I would like to ask a question. On an anterior root, would you use amalgam filling with the porcelain crown over that? Would not the amalgam be liable to show a dark line under the gum?

Dr. Finn—It is covered up with the platinum band anyway.

Dr. Welch—I understood you to say that you would not put the band clear down over the edge.

Dr. Finn—No, but the root wouldn't show. The band will go up under to the free margin, and in a case of this kind where the gum had been pushed away in years, say, before, you could extend your band a little farther up in that case and not injure anything, because it has been injured all it is going to be.

(Proceedings of the Iowa State Dental Meeting to be continued in our next.)



# REPORTS OF MEETINGS

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## SOCIETY ANNOUNCEMENTS

### STATE SOCIETY MEETINGS.

- California State Dental Society, San Francisco, May 16, 17, 18.  
Connecticut State Dental Association, Hartford, April 19, 20.  
Florida State Dental Society, Atlantic Beach, May 25.  
Georgia State Dental Society, Athens, June 28.  
Illinois State Dental Society, Peoria, May 10, 11, 12.  
Iowa State Dental Society, Des Moines, May 3, 4, 5.  
Indiana State Dental Association, Indianapolis, June 14, 15.  
Kentucky State Dental Association, Louisville, May 17, 18, 19.  
Maine Dental Society, Bangor, July 19, 20, 21.  
Massachusetts Dental Society, Boston, June 1, 2.  
Michigan State Dental Association, Lansing, June 28, 29.  
Minnesota State Dental Association, St. Paul, June 16, 17.  
Mississippi Dental Association, Jackson, April 19, 20, 21.  
New Jersey State Dental Society, Asbury Park, July 21, 22, 23.  
New York State Dental Society, Albany, May 13, 14.  
Oklahoma and Indian Territory Association, Shawnee, O. T.,  
May 10, 11 and 12.  
North Carolina Dental Society, Morehead City, June 22-25.  
Texas State Dental Association, Corsicana, May 5, 6, 7.  
Utah Dental Association, Salt Lake City, April 4.  
Vermont State Dental Society, Montpelier, March 16, 17, 18.  
Washington State Dental Society, Seattle, May 26, 27, 28.  
Wisconsin State Dental Society, Manitou, July 19-21.

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### NATIONAL SOCIETY MEETINGS.

- National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.  
Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.

## MICHIGAN STATE BOARD.

The State Board of Examiners for Michigan will meet in Grand Rapids, Mich., May 10, 1904. Respectfully,  
W. C. McKINNEY, Secretary.

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## EASTERN INDIANA DENTAL SOCIETY.

The annual meeting of the dentists of eastern Indiana will be held in Richmond May 3 and 4. The program committee announced that the principal addresses will be delivered by Dr. Fletcher of Cincinnati. President Kelley of Earlham College will deliver the address of welcome.

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UNION MEETING OF CENTRAL AND SOUTHWESTERN  
DENTAL SOCIETIES.

The joint meeting of the Central Michigan and Southwestern Michigan Dental Associations will be held in Grand Rapids, Tuesday and Wednesday, April 12th and 13th. Headquarters, Hotel Pantlind.

G. F. SMITH, D. D. S.,  
C. W. JOHNSON, D. D. S.,      Sec., Central Michigan Assn.  
Sec., Southwestern Assn.

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## NORTHERN INDIANA DENTAL SOCIETY.

The 16th annual meeting of the Northern Indiana Dental Society will be held in Huntington, Indiana, on October 4th and 5th, 1904. Arrangements are being made to make this the greatest convention ever held in Northern Indiana. Already some of the best talent in the country has been secured.

OTTO U. KING, Secretary.  
King Building, Huntington, Indiana.

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## ILLINOIS STATE DENTAL SOCIETY.

The fortieth annual meeting of the Illinois State Dental Society will be held at Peoria Tuesday, Wednesday and Thursday, May 10th, 11th and 12th. A splendid programme, including attractive and unusually interesting features, is under course of preparation.

The usual fare of one and one-third—certificate plan—will be obtained on all roads in the state and from St. Louis. Remember the date. All reputable practitioners cordially invited.

HART J. GOSLEE,  
Secretary, 580 Madison St., Chicago.

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#### SOUTHERN WISCONSIN DENTAL ASSOCIATION.

The tenth annual meeting of the Southern Wisconsin Dental Association will meet in Beloit, Wis., June 8 and 9, 1904. We anticipate a pleasant as well as a profitable meeting, and a cordial invitation is extended to all.

C. W. COLLVER,  
Secretary, Clinton, Wis.

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#### INDIANA STATE DENTAL ASSOCIATION.

The forty-sixth annual meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, Ind., Tuesday, Wednesday and Thursday, June 14, 15 and 16th.

Drs. J. E. Weirick of St. Paul and J. E. Nyman of Chicago will be among the essayists. The executive committee has arranged for a number of good papers and clinics.

Railroad rates on all roads in Indiana. Address,

J. Q. BYRAM, Indianapolis, Ind.

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#### ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Illinois State Board of Dental Examiners to examine applicants for license to practice dentistry in this state will be held in Chicago May 6 and 7, 1904.

Under an opinion of the attorney-general the following are eligible to take the examination before the board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to moving into the state, and anyone who failed to register in this state at the time the law went into effect, which was in 1881."

Candidates must furnish their own patients and come provided with the necessary instruments, rubber dam and gold to perform practical operations and such other work as is deemed advisable by the board. Those desiring to take the examination should matricu-

late with the secretary at least ten days before the date of meeting. The examination fee is \$10.00. Any further information can be obtained by addressing the secretary.

J. G. REID, Secretary,  
1204 Trude Bldg., 67 Wabash Ave., Chicago.

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#### FOURTH INTERNATIONAL DENTAL CONGRESS. COMMITTEE ON STATE AND LOCAL ORGANIZATIONS.

J. A. Libbey, Chairman, 524 Penn Avenue, Pittsburg, Pa.

The committee on state and local organizations is a committee appointed by the committee of organization of the fourth international congress with the object of promoting the interests of the congress in the several states of the Union. Each member of the committee is charged with the duty of receiving applications for membership in the congress under the rules governing membership as prescribed by the committee on membership and approved by the committee of organization. These rules provide that *membership in the congress shall be open to all reputable legally qualified practitioners of dentistry*. Membership in a state or local society is not a necessary qualification for membership in the congress.

Each state chairman, as named below, is furnished with official application blanks, and is authorized to accept the membership fee of ten dollars from all eligible applicants within his state. The state chairman will at once forward the fee and official application with his indorsement to the chairman of the finance committee, who will issue the official certificate conferring membership in the congress. No application from any of the states will be accepted by the chairman of the finance committee unless approved by the state chairman, whose indorsement is a certification of eligibility under the membership rules.

A certificate of membership in the congress will entitle the holder thereof to all the rights and privileges of the congress, the right of debate, and of voting on all questions which the congress will be called upon to decide. It will also entitle the member to one copy of the official transactions when published and to participation in all the events for social entertainment which will be officially provided at the time of the congress.

The attention of all reputable legally qualified practitioners of dentistry is called to the foregoing plan authorized by the committee



of organization for securing membership in the congress, and the committee earnestly appeals to each eligible practitioner in the United States who is interested in the success of this great international meeting to make application at once through his state chairman for a membership certificate. By acting promptly in this matter the purpose of the committee to make the fourth international dental congress the largest and most successful meeting of dentists ever held will be realized, and the congress will thus be placed upon a sound financial basis.

Let everyone make it his individual business to help at least to the extent of enrolling himself as a member and the success of the undertaking will be quickly assured. Apply at once to your state chairman. The state chairmen already appointed are:

General Chairman—J. A. Libbey, 524 Penn Ave., Pittsburg, Pa.

#### STATES.

- Alabama—H. Clay Hassell, Tuscaloosa.  
Arkansas—W. H. Buckley, 510½ Main St., Little Rock.  
California—H. P. Carlton, Crocker Bldg., San Francisco.  
Colorado—H. A. Fynn, 500 California Bldg., Denver.  
Connecticut—Henry McManus, 92 Pratt St., Hartford.  
Delaware—C. R. Jeffries, New Century Bldg., Wilmington.  
District of Columbia—W. N. Cogan, The Sherman, Washington.  
Florida—W. G. Mason, Tampa.  
Georgia—H. H. Johnson, Macon.  
Idaho—J. B. Burns, Payette.  
Illinois—J. E. Hinkins, 131 E. 53d St., Chicago.  
Indiana—H. C. Kahlo, 115 E. New York St., Indianapolis.  
Iowa—W. R. Clack, Clear Lake.  
Kansas—G. A. Esterly, Lawrence.  
Kentucky—H. B. Tileston, 314 Equitable Bldg., Louisville.  
Louisiana—Jules J. Sarrazin, 108 Bourbon St., New Orleans.  
Maine—H. A. Kelley, 609 Congress St., Portland.  
Maryland—W. G. Foster, 813 Eutaw St., Baltimore.  
Massachusetts—M. C. Smith, 3 Lee Hall, Lynn.  
Michigan—G. S. Shattuck, 539 Fourth Ave., Detroit.  
Minnesota—C. A. Van Duzee, 51 Germania Bank Bldg., St. Paul.  
Mississippi—W. R. Wright, Jackson.  
Missouri—J. W. Hull, Altman Bldg., Kansas City.  
Nebraska—H. A. Shannon, 1136 "O" St., Lincoln.  
New Hampshire—E. C. Blaisdell, Portsmouth.  
New Jersey—Alphonso Irwin, 425 Cooper St., Camden.  
New York—B. C. Nash, 142 W. 78th St., New York City.  
North Carolina—C. L. Alexander, Charlotte.  
Ohio—Henry Barnes, 1415 New England Bldg., Cleveland.  
Oklahoma—T. P. Bringhurst, Shawnee.

Oregon—S. J. Barber, Macleay Bldg., Portland.  
 Pennsylvania—H. E. Roberts, 1516 Locust St., Philadelphia.  
 Rhode Island—D. F. Keefe, 315 Butler Exchange, Providence.  
 South Carolina—J. T. Calvert, Spartanburg.  
 South Dakota—E. S. O'Neil, Canton.  
 Tennessee—J. P. Gray, Berry Block, Nashville.  
 Texas—J. G. Fife, Dallas.  
 Utah—W. L. Ellerbeck, 21 Hooper Bldg., Salt Lake City.  
 Vermont—S. D. Hodge, Burlington.  
 Virginia—F. W. Stiff, 2101 Churchill Ave., Richmond.  
 Washington—G. W. Stryker, Everett.  
 West Virginia—H. H. Harrison, 1141 Main St., Wheeling.  
 Wisconsin—A. D. Gropper, 401 E. Water St., Milwaukee.  
 For the Committee of Organization,  
 EDWARD C. KIRK, Secretary.

## SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION.

The southern branch of the National Dental Association met in Washington, D. C., Feb. 23d, and were in session for three days. About 250 dentists were present and a feature of the meeting was a reception by President Roosevelt. The president shook hands with each of his callers.

"The Treatment of Teeth of Children" was the special subject for consideration during the first day's session. Dr. N. N. Vann of Attalla, Ala., read a paper on "The Preservation of the Temporary Molars and Cuspids." He insisted that as much care should be taken of the temporary teeth as possible, inasmuch as they are designed to serve as a protection to the permanent teeth.

Dr. J. Y. Crawford of Nashville, Tenn., introduced a resolution, which was unanimously adopted, asking congress to commission dental surgeons in the navy, instead of adopting the contract system. President Roosevelt was quoted as urging that the best kind of material and personnel be obtained for the service, and the secretary of the navy as saying the contract system of the army was not deemed advisable for the navy. The civil status of the dental profession and the interests and educational standards of universities and colleges would suffer, it was said, by a legislative act which failed to accord to dental surgeons some measure of the grades of the commissioned rank, which is accorded pay and medical officers. The concluding paragraph of the resolution says:

"Resolved, That it is the sense of the members of this, the South-

ern Branch of the National Dental Association, and the profession universally, that the bills offered by Senators Pettus and Penrose and Representative Brownlow provide the lowest grades of rank that can possibly attract to the service such an educated and efficient dental corps as the personnel of the navy deserves and the economic interests of the government demand."

During the business session a motion passed to petition congress to grant a life-saving medal to Dr. F. C. Wilson of Savannah, Ga., a member of the association, who rescued from drowning during the summer of 1896 Dr. J. J. Sarrazan of New Orleans, another member. The dental association has already granted him a medal for the heroic act.

Dr. D. B. Smith of Philadelphia read a paper at the evening session on "Prophylaxes." He maintained uncleanness of the teeth is the root of all diseases to them. He described how the physicians sent consumptives to live on the mountain top to breathe fresh air and to take exercise.

"You might as well breathe the air from the mouth of a sewer as to leave the mouth of a patient filthy with disease," continued he. "Every breath of air is laden with disease from the mouth."

He agreed with a recent writer, who said the English nation was declining through lack of care for the mouth. "Not only in England, but in America, few there are who think of their teeth so long as they do not pain," he said. "The only wonder is that the human system stands up so long under the strain brought upon it." He scored dental journals for devoting so much time to mechanics and so little to other points in the profession.

Dr. Head of Philadelphia read a paper on "Split Roots." Both papers developed considerable discussion.

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### THE LOUISIANA STATE DENTAL SOCIETY.

The Louisiana State Dental Society assembled in annual convention at the New Orleans College of Dentistry Feb. 17-18, with a large attendance of members from all parts of the state. The morning session was devoted to a practical demonstration of implantation by Dr. J. H. Landry.

In the absence of the president, Dr. J. F. Johnston of Ruston, there was no president's annual report.

The afternoon session was devoted to a demonstration by Dr. C. V. Vignes on the use of the furnace in soldering frame in porcelain

crown and bridge work. At night papers were read by Dr. A. L. Plough, on "Professional Ethics," and Dr. Paul De Verges, on a demonstration of treatment of cleft palate due to traumatism.

The convention closed with an informal banquet at Maylie's restaurant.

Dr. Valentine K. Irion, chairman of the executive committee, submitted an oral report. Dr. Andrew Friedrichs submitted a report for the by-laws committee. Dr. J. H. Landry had a live subject in the person of a patient he had treated, and with the aid of the patient gave a practical explanation of implantation. This closed the morning session.

Dr. C. V. Vignes explained the use of the furnace in soldering frame in porcelain crown and bridge work. He made a crown of porcelain for a patient, who was present at the session.

At the night session, Dr. Ephraim Friedrichs read an able and interesting paper on "Anaesthesia." He showed that anaesthesia was not unknown to the ancients, to whom were known some crude methods of putting a patient into such a condition as to render him insensible to pain. Dr. Friedrichs, while he had to curtail the paper on account of the time allowance, treated the subject comprehensively, making the point that too much importance could not be placed on the subject of anaesthesia, which was as much in the province of dentistry as it was of surgery. A short discussion followed.

After a short history of a case of cleft palate due to traumatism, which he treated successfully, Dr. Paul De Verges showed the casts from which the molds were made. They were examined with much interest. Dr. Andrew Friedrichs led in the discussion.

The papers read on the second day were: "Fractures of the Maxilla," by Dr. Andrew Friedrichs, and "New Appliances and Instruments," by Dr. J. Sarrazin.

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#### ALUMNI ASSOCIATION OF THE DENTAL DEPARTMENT, UNIVERSITY OF BUFFALO.

The Alumni Association of the dental department of the University of Buffalo held its fifth annual clinic Feb. 25 and 26. The meetings were held at the college building.

The first session was called to order by President Harry B. Huver, who delivered an address, the papers of the day including "Some Phases of Porcelain Inlays" by W. T. Reeves of Chicago, "Attachable Facing for Crown and Bridge Work" by M. L. Fay, and "Dental Jurisprudence" by F. W. Proseus of Rochester.

Dr. I. L. M. Waugh spoke on "Dentine, Its Minute Structure from a Practical Viewpoint," and Dr. Herbert A. Pullen gave a lecture on "Aesthetics of Facial Orthopedia," illustrated by lantern slides.

A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### DR. THOMAS B. WELCH.

At his home in Overbrook, a suburb of Philadelphia, December 29, 1903, in the seventy-eighth year of his age, the earthly career of Dr. Thomas Bramwell Welch closed in death. On Christmas day he was stricken with apoplexy and four days later sank into the final sleep.

Dr. Welch was born in Glastonbury, Somersetshire county, England, in the year 1825. He came to America with his parents when he was twelve years old. His professional career in this country began with his graduation in 1852 from the New York Central Medical College. Three years later, 1855, he entered upon the study of dentistry in the office of Dr. Foster of Watertown, N. Y., and in 1856 went with his family to Winona, Minn., and began dental practice. Subsequently he removed to Vineland, N. J., at which place, and in Philadelphia, the greater part of his professional life was spent. In New Jersey he became distinguished as a practitioner and was honored by election to the office of president of the New Jersey State Dental Society.

To the profession at large Dr. Welch was best known by his long continued service in dental journalism. For seventeen years he was editor of *Items of Interest*, which position he continued to fill until a change in ownership led to the transfer of that journal from Philadelphia to New York City. Immediately subsequent to that event, in August, 1896, he assumed the editorship of a new dental journal, published under the title of *Welch's Monthly*, by A. S. Robinson, who for many years had been actively interested in the publication of *Items of Interest*. Under this management the publication of *Welch's Monthly* continued for one year. In August, 1897, a change of ownership and of title took place; the journal became the *Dental Brief*, and its business management was assumed by the present publishers of this journal. The editorial connection of Dr. Welch with the *Dental Brief* continued until March, 1899, when failing health compelled his resignation.

Notwithstanding his devotion to a system of phonetic spelling

radically subversive of the accepted orthography of English speed, Dr. Welch's ability as an editor was universally recognized. He wrote fluently and voluminously, but always with intelligence and perspicuity, and had special skill in seizing the salient points in contributions to general dental literature and reproducing the pith of long papers in concise and readable form.

Dr. Welch first attracted the attention of the dental profession as the manufacturer of an alloy for amalgam. Shortly after the late Dr. Flagg had announced the new departure, a demand was created for something better in the way of an alloy than what then could be found in dental depots. Dr. Welch had prepared an alloy for his own use, samples of which he distributed to some of his professional friends, who were very much pleased with it. This was brought up before the New Jersey State Dental Society, of which Dr. Welch was a member, at the meeting held in 1878. A resolution was passed requesting Dr. Welch to place on the market an alloy that would be reliable and could be sold at a reasonable price. Dr. Welch then began the manufacture of his gold and platina alloy, and that it was reliable is proven by its quickly becoming and still remaining the standby of many first-class operators, notwithstanding the numerous competitors.

Dr. Welch was twice married. His first wife was Miss Lucy Hutt, to whom he was married April 6, 1847, and who died in April, 1894. On October 23, 1895, he was married to Miss Victoria Sherburn of Vineland, N. J., who survives him.

The following are his surviving children: Dr. George B. Welch, Washington, D. C.; Dr. Charles B. Welch, Westfield, N. J.; Dr. Emma Welch Slade, Vineland, N. J.; Dr. Clara Welch Gould, Moore, Pa.; Mrs. Villa Welch Murray, Washington, D. C., and Mrs. May Welch Thomas, Cynwyd, Pa.

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#### MONROE J. SOLENBERGER.

No greater love than this hath any man. Had Dr. Monroe J. Solenberger been less devoted as a husband and father he might to-day be still alive, but he wore out his constitution by long hours of worry and of watching at the bedside of his wife and daughter, and when he was himself, finally stricken by the same disease, which had laid his wife low, and which snuffed out his daughter's life, he had not the strength to fight a winning battle.

He was one of the heroes of every-day life, but he was buried without any of the honors to which he was entitled. Death was due to diphtheria complicated with pneumonia, and the fact that there is danger of contagion made it necessary to hold a strictly private funeral.

Four times has death in the shape of diphtheria invaded the Solenberger home and claimed a victim. In 1893 the doctor and his wife visited the World's Fair in Chicago and took two of their children with them. While they were in Chicago the children were seized with the malady and when the parents returned they brought with them two little bodies.

A short time ago Mrs. Solenberger contracted diphtheria and for a time her life was despaired of. Just as she had reached the turning point their four-year-old daughter suddenly developed the symptoms of the same disease and died.

Mrs. Solenberger and three small children survive.

Dr. Solenberger was one of the most prominent dentists of Peoria. He was born in Canton, O., but had lived in Peoria for a number of years. He was 38 years old at the time of his death.

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#### DR. MORGAN TULLES.

Dr. Morgan Tuller, a dentist of San Pedro, Cal., died March 5 of heart failure. On March 1 he submitted to a severe surgical operation. It was found that his condition was an aggravated one, and his system could not stand the strain. He appeared to be doing fairly well when he took a sudden turn for the worse. Dr. Tuller was 56 years old, and located in Long Beach in 1901. A wife and two children survive him.

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#### DR. BYRON GORDON.

Dr. Byron Gordon died Feb. 10th after an illness of but a day. Acute quinsy and complications developing from a cold brought on the end before his friends were aware of his illness.

Dr. Gordon was born in Rushford, Allegheny county, Pa., on Sept. 2, 1841, and was thus past 63 years of age. He attended a dental college in the East, and after completing his education came West and settled in Port Byron, Ill., where he maintained an office for a short time.

In 1868 he left Port Byron and located in Moline in the practice of dentistry.

He was married in Rock Island to Miss Sarah B. Barnes on April 20, 1871. Two children, Mrs. Fannie Monette of California and Mrs. Volland of Chicago, survive.

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#### DR. JEREMIE HETU.

Dr. J. Hetu, a prominent dentist of Brazil, Ind., died at that place March 4 of Bright's disease after a lingering illness of more than a year, and for two weeks had been confined to his bed. The deceased was 42 years of age and was a French Canadian by birth. He graduated from the American College of Dental Surgery, class of '92, and moved to Brazil twelve years ago. He was married nine years ago to Miss Dossie Harlin of Bellmore, Ind. To their union no children were born.

Dr. Hetu was very popular with his fellow practitioners and was one of the oldest dentists in point of practice in Brazil. He was a self-made man and procured his education through his own efforts.

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#### DR. W. L. GEMMEL.

Dr. W. L. Gemmel died at Falls City March 5, after a short illness. The doctor went to supper Wednesday evening, after the day's work in apparent good health. While eating supper he was taken suddenly sick and grew gradually worse until Friday evening; an operation was performed. He died Saturday evening, after suffering great pain. Dr. Gemmel located in Falls City about two years ago, to take charge of the dental office of Dr. T. J. Spench. He was a first-class dentist and had a good practice from the start. He made many good friends. He leaves a wife. The remains were taken to Iowa for burial. The doctor received word the first of the week of his mother's death.

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#### DR. GLENN MERRIT.

Dr. Glenn Merrit of Dubuque, Iowa, a young man and recent graduate, died recently at that place. Dr. Merrit was well and favorably known, and the city of Dubuque as well as the dental profession has sustained a great loss in his death.



## PERSONAL AND GENERAL

### FIRES.

Dr. A. L. Vaughn of Chicago lost \$300 through a fire which destroyed the building in which he had his office.

A fire at Manitowoc, Wis., destroyed the office of Seehase & Wernecke, dentists at that place; loss, \$1,800.

W. H. Weikert's dental office at Pomeroy, Iowa, was partly burned March 1.

### IN OHIO, TOO.

McCordsville, March 9.—Tom Hacker has opened dentine parlors in the Jones block over Steve Hankins' undertaking plant. Putting in a soft solder filling for Miss Mary Jane Beezley was his first job.—Cleveland (Ohio) Leader.

### SWALLOWED HIS TEETH.

While eating a few days ago P. Schom of Rutton, Minn., swallowed his false teeth. He died at Luther hospital, St. Paul, of blood poison resulting from an operation to remove the teeth from the stomach.

### CHANGE IN STATE DENTAL EXAMINERS.

The following changes were announced by Governor McBride in the State Board of Dental Examiners:

C. S. Irwin of Vancouver, appointed to succeed M. D. Hurston of Spokane, term expired; E. B. Edgers of Seattle, to succeed George W. Stryker of Everett, term expired.

### TYPHOID AT WESTERN RESERVE.

Typhoid fever is playing havoc with the students of the dental and medical colleges of Western Reserve University at Cleveland, Ohio. Five students, R. E. Jackson, W. B. Challis, J. M. Simpson, L. M. Christie and N. W. Goodman, of the dental school are at present sick with it, while two have but recently returned to the school in a convalescent condition. In the medical college there are three cases of typhoid. A few weeks ago a death occurred at that department from the same disease. Some cases exist in the other departments also.

## KEPT WEDDING SECRET.

Mrs. Oscar Avery of New Albany, Ind., while cleaning house found a legal document, which proved to be a marriage certificate certifying that her daughter, Miss Osie Avery, was married Feb. 14 to Bert H. Dale of this city, a student at the Louisville College of Dentistry.

She said that they had intended keeping the wedding a secret until her husband had finished his college course. The bridegroom is twenty years old and the bride is just eighteen.

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## SUES FOR DAMAGES.

Dr. David S. Skinner, a Brooklyn dentist, seeks to recover the sum of \$25,000 damages for personal injuries from the Brooklyn Heights Railroad Company, and his suit for that amount is now on trial. He alleges that he was so seriously injured in a trolley accident on August 21, 1902, that he has since been unable to attend to his profession as he had been before when he was in perfect bodily health.

On the trial Dr. Skinner told how the accident happened. He was a passenger on a trolley car and attempted to alight, but the car was started before he was safely on the ground and he was thrown down, striking on his head. As a result his eyesight is seriously impaired. He testified that the income from his practice up to the time of his injuries amounted to \$10,000 a year. The trial is still on.

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## SUICIDE TRIES NITROUS OXIDE GAS.

Leaving a hastily penciled note to explain his act, in which he joked with death, Dr. Isaac S. Schoenbrod, a dentist with offices at 859 West North avenue, shot himself through the heart after he had tried to commit suicide by inhaling laughing gas. Lying upon his desk in his home, which adjoins his office, was found the following note:

"My Darling Bertha—I am crazed with a pain in my head. Will take a little laughing gas, and if I should laugh myself to death you will find all my papers, a letter to yourself and one to my parents in my desk. Fare you well, my darling, and forgive your loving husband.

"ISAAC S. SCHOENBROD.

"P. S.—I leave everything to you. Have tried the gas without relief and will try something else."

Dr. Schoenbrod's body was found lying on his bed. He had bared his chest where the bullet entered.





I. P. WILSON.

# PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

## PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.  
(Professor of Prosthetic Dentistry and Technics, School of Dentistry,  
University of Illinois.)

### CHAPTER XIII.

In the fall of 1902, while attending the Northeastern Dental Association, I took occasion in discussing a paper on alveolar troubles, to express an opinion relative to prosthetic procedures in the disease known as pyorrhea alveolaris, and the method provoked commendable discussion. Believing that this feature of prosthetic work is essential in the treatment of both pyorrhea alveolaris and gomphiasis, I have decided to delineate the required attachments together with a description of the medicinal agents employed in the relief and cure of this character of disturbances.

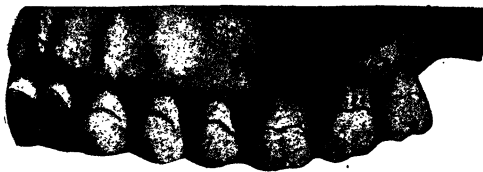


DIAGRAM I.

Case of Pyorrhea Alveolaris.

While pyorrhea alveolaris is classed among diseases, gomphiasis must be termed a physical indication, since it is a condition accompanying age, though in rare cases it may be noted in middle-aged persons. Gomphiasis presents the same relation to the physical economy, that gray hair does—being indicative of age—but not necessarily so. In gomphiasis the teeth are loose and they seldom present decay, and are of a cream yellow shade. There are no signs of alveolar absorption or presence of waste product or pus. The

teeth are generally long and possess ill-shaped cusps; never bell shaped, but rather of cubic outlines. My attention was directed to this abnormality something like twelve years ago, and in 1892 I incorporated in my "Compendium on Prosthetic Dentistry" the study and treatment of gomphiasis; making it a part of the freshmen course, and of late years added it to the senior curriculum. A brief article also appeared in the Dental Summary.

Gomphiasis is so akin in its manifestations to pyorrhea alveolaris that many practitioners make the mistake in treating it with medicines adapted to pyorrhea, and meeting with ill results are apt to pronounce it a stubborn case of gingivitis, and invariably recommend the extraction of all the teeth, substituting artificial ones, when it remained within the prosthetic province to restore and save the natural dental organs. The extraction of teeth in such a case is entirely contra-indicated, inasmuch as appliances which will give stability to the affected parts, they will speedily yield and become normal in character.

I have observed that cases of gomphiasis are mostly found in people of the lymphatic temperament and cannot be termed an abnormal condition, inasmuch as the osseous structure of their being is of a less dense or firm nature. The gums are naturally flabby and the entire system is rather of a lower form. We may readily recognize this temperament by the following general and special characteristics:

*The Lymphatic Temperament*—To the ancients known as the phlegmatic. This temperament might be called stomachic or digestive. External indications, round and well-developed jaws. Constitutional outlines, fleshy and bulky, general movements slow and sluggish. Hair, coarse, straight and drab. Fingers, short, flabby and cold. Favorable characteristics, contented, agreeable and jolly. Unfavorable characteristics, sluggish, lazy and unenergetic. Example of type, Esquimaux. Human example, Henry VIII of England.

The primal requisite in treating a true case of gomphiasis rests in rendering stability to the troubling teeth, and in granting this mechanical aid the basic principle of surgery is observed in that we have afforded "REST" to the injured or ailing part. So that the essential event sought is to establish a tightness of these teeth by mechanical means and hence afford nature the opportunity of restoring the wasted parts and rejuvenating the affected regions.

In gomphiasis the osseous tissue is involved and it is absolutely imperative that the teeth in their bony sockets be firmly registered in that we give immobility or rest, the factor in bringing about normal relations. In observing the maxims of surgery you proceed with agencies promissory of success. Remove the cause and bequeath rest, and most cases of gomphiasis will yield without the intervention of medicinal aid. Gomphiasis, it appears, is largely the sequence to a disturbed digestive tract, and proper dieting will tend to correct the difficulty; though prosthetic appliances properly constructed are always a decided benefit.



DIAGRAM II.  
Case of Gomphiasis.

Of what service can any medicine be if the teeth are left to yield to the force of mastication? How can nature restore the osseous tissue when there is a constant mobility of the injured region? The abuse which this movement of manducation and mastication contribute offsets any attempt within the gift of nature and consequently the condition, instead of improving, tends rather to the worse. If it were but the muscular tissue that was affected, mobility would not necessarily interfere with its healing tendency, but being the osseous tissue the teeth must be fastened in such a manner most congenial and in positions occupied when mastication is being pros-

ecuted—if this latter element is not regarded little success can be attended or anticipated. The all important question at this point is, how can we safely guarantee that when the teeth are splinted or knuckled that their positions will be precisely as they are during mastication? I have found that the task is not so difficult. By requiring the patient to close the teeth together in a manner assuring accurate occlusion, I then prepare a roll of modelling compound about the length and diameter of a lead pencil, and while it is still in a most moldable condition, distend the lips and cheeks of the patient, and lay the roll of compound in the vestibule of the mouth and hastily fashion the compound against and about the buccal and labial surfaces of the inferior teeth (the inferior teeth being usually the ones affected—though, if the superior denture is the one giving trouble I proceed as with the former). I next have a syringe of



DIAGRAM III.  
Gold Cusps and Bar.

cold water and dash the water on the compound, thus quickly cooling the compound. Then request the patient to release the position of occlusion, and next proceed to lay a similar roll of compound around the lingual surfaces of the teeth, being especially careful not to cover the occlusal surfaces nor incisal edges. With this carefully performed you have accurately registered the position of those teeth as they stand during mastication, and under no strain other than the contact of occlusion. If this is observed, you are now ready to take a plaster impression of the occlusal surfaces and incisal edges of the registered teeth. And a splint or attachment which is constructed in this painstaking manner is certain to be efficient in rendering service. A die is made from the plaster model and the molar and bicuspid cusps are swaged either in one piece (gold about 32 gauge) or you can swage each cusp separately and reposition them in the mouth and take an impression as they are in position (the



teeth still registered) and then solder these individual cusps into an assemblage of cusps. Though the former method will be found perfect enough. After the cusps are swaged and trimmed I solder a bent bar of gold to ride on the lingual surfaces of the incisors and solder this to the mesial edge of the first bicuspid gold cusps.

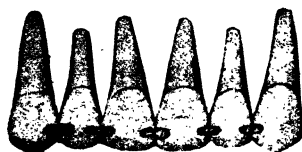


DIAGRAM IV.  
Gold Braces.

(Diagram III.) Then polish the case and carefully bring the gold attachment into place. It may need a trifle changing before cementing into position; if so be sure to see that you are not pressing unduly on any one of the teeth, since it is essential that they all bear the burden alike; then cement the case into place and dismiss the patient for a day or two, and upon returning clamp the anterior teeth to the gold bar by means of gold wire or the finest harpscord, and the mechanical side of the case is complete. Having carefully fu-

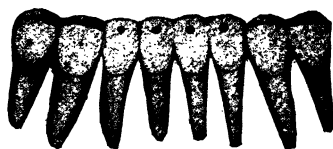


DIAGRAM V.  
Gold Cusps, Bar and Pin.

migated the gingivæ with sulphur, I give the gums a bath with extract of geranium; the former gives promise of antiseptic treatment, while the latter constricts the muscular tissue surrounding the teeth inducing the gums to tightly hug the cervical portion of the dental organs.

The case can also be constructed by placing gold bands about the affected teeth, cementing them into place and leaving them thus for

a period of at least six months—though following up occasionally with the medication as above directed.

There is another very serviceable method, and that is to so construct the attachment that the mesial and distal surfaces are embraced by gold of a crescent shape, though the two crescents must be soldered so as to leave the ends of the crescents to embrace the neighboring tooth. In the event this dual crescent is used on molars you may solder a small lug or spur on the attachment so as to prevent the crescent from being forced, during mastication, against the gums. These lugs or supports rest on the distal and mesial fifth of the occlusal surfaces. This device is very simple and can be applied in many cases, since in most of the cases of gomphiasis the teeth are slightly separated, hence necessitating the trimming of the approximating surfaces. But if trimming the teeth is required in order to save the case, trim even if considerable tooth structure is eliminated. (Diagram IV.)

Should the anterior teeth be the seat of trouble a splendid method consists in making a cope of gold for the cuspids and connect these two gold cusps by means of a golden bar fashioned in a way as to ride just about five millimeters below the incisal edge of the incisors, then drill a small hole through the incisal tip and arrange to have a gold pin pass through this opening soldered onto the gold bar, then on the free end of the pin a thread can be cut and nut fitted; cement the case into position and add the *thin* nut to the pin. Dismiss the patient, and in the course of a few days have him return and then trim off the exposed parts of the pin, and with discs proceed to polish the thin nut down to mere feather edge, and you will have a very strong and permanent attachment. (Diagram V.)

I have employed these methods with the best of success and am certain that if the procedures are noted few will meet with difficulty in handling these cases.

Pyorrhea alveolaris will yield after giving it similar consideration, and I am sanguine that most of the teeth of this character are often over medicated and failure resulted in that the teeth did not receive sufficient rest. This paper intends to recommend the necessity of affording positive stability to the loose teeth; that surgical maxims must be observed and prosthetic appliances will afford the best possible means of accomplishing this result.

(To be continued.)

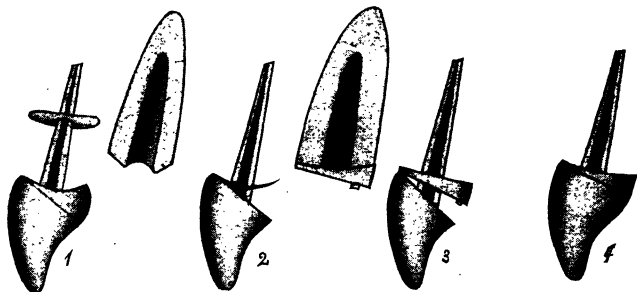
**PORCELAIN CROWNS.**

(By J. M. Thompson, D. D. S.)

**CHAPTER VI.**

The general principles underlying all porcelain work in dentistry seem to find their greatest latitude and usefulness when applied to crown and bridge work. This work is limited only by the ability of those undertaking the manipulation of the different materials available and each success always leads on to greater and more satisfactory results.

The evolution of the porcelain crown is of itself an interesting study. It is needless at this time, however, to go into its details, as all are (or should be) familiar with the many advances which have



taken place. One has simply to compare the primitive methods employed in the beginning with those now in use to realize that a great deal of earnest thoughtful work has been contributed to this particular branch of dentistry.

With the advent of the midget furnace, introduced by Dr. C. H. Land, which was soon followed by another made by Dr. Downey (who also placed upon the market a low fusing material that in the hands of careful operators produced some very gratifying results), that office made porcelain crowns become possible. Of course, there were a few of the older men making an occasional crown, but the real impetus to this work was received as already stated.

The general experience of porcelain workers is that a tendency to use higher and higher fusing materials is developed with each successive case, and the higher it is the better and more beautiful the results. With these high fusing bodies, crowns which have been for years upon the market, have been elevated to a much greater field of usefulness. While describing some of the already well known

methods the wish of the writer is that those who are familiar with them may recognize their merit and that those who are seeking ideas may find them.

One of the most abused things in dentistry is the Logan crown. When well fitted, there is not a more beautiful crown to be found. It may be used in so many ways by one who is familiar with porcelain that the needs of the most fastidious may be fully met. Some of the many reasons why these crowns may be used to advantage are, first of all, its life-like appearance. Secondly, it is beautifully colored and gives far better results in this respect than crowns made with facings. Its principle fault is the soft platinum post which becomes more thoroughly annealed during subsequent bakings, and unless the crown is fused to a cap does not possess sufficient rigidity.

In using the Logan crown upon an anterior tooth, it is rarely necessary to use a full band on the central incisors or cuspids; but, as a general rule, it is well to band the lateral incisors, as this tooth is the one most frequently returning to us with the roots split after these crowns have been set without a band. A quick way to set such a crown upon a central incisor or cuspid and to be fully assured of a perfect fit, is to prepare a disc of platinum, about 36 gage, and first fit it to the end of the root, marking with a pointed instrument the position of the hole in which the post will be placed. Now fit in the crown approximately, being careful to secure a perfect labial joint. Grind the tooth as shown by the dotted line in Fig. 1, and then put the post through the hole in the disc and press it firmly into place upon the end of the root. If properly fitted and the platinum is rigid enough, there is little necessity for further burnishing. In case, however, one wishes to be perfectly sure warm gutta percha may be placed between the crown and the disc, and then forced into place. This should be invested, after which the rubber may be removed and the porcelain placed in the space. It is preferable to only partially restore the contour at the first baking. This affords an opportunity to try in the crown, and if any change has taken place it is more easily corrected at this time. If found perfect in every way, the remaining space may be filled and finished to contour.

In fitting one of these crowns to a lateral incisor, the band and cap may be made the same as for the Richmond crown. The crown should be ground same as in Fig. 1, and the post passed through the opening in the cap until the crown touches the cap at the proper place. It is sometimes advisable to solder the cap to the post, but not always necessary. When not soldered to the post a little loop soldered to the surface of the cap affords an attachment for the porcelain, which renders the crown less liable to fracture.

(To be continued.)

## OPERATIVE DENTISTRY.

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

### CHAPTER VIII.

#### TECHNIQUE OF OPERATIONS IN CAVITY PREPARATIONS.

The first thing to be considered with cavities between the teeth is working space. Where it is convenient for the patient to return at another time, near at hand, space may be secured by wedging so gently that no pain and inconvenience worth mentioning is experienced. This may be done by waxed tape drawn in in one or two folds between the two teeth, or by packing dry cotton pellets into the interproximal space, provided the cavity or cavities to be filled will hold the cotton in place and not permit of its being easily dis-



FIG. 16



FIG. 17

lodged. When this cotton, packed in hard, becomes wet it begins to swell and very gently pushes the teeth apart. Immediate wedging may be done with various forms of separators when emergency requires, or with wooden wedges carefully driven between the teeth.

In using any of the immediate separators the adjustment should be done with the greatest of care and not to cause unnecessary pain by tipping or by crowding unnecessarily against the gums. The separator should be held steady and in place with one hand while being tightened up with the other. As soon as a sense of firmness is felt we should stop and await a few moments, doing something else in the interval, and gradually tighten from time to time. If there is a tendency to unduly impinge upon the gums by sliding up, the separator should in some way be prevented, but the means of doing so depends upon the kind of separator used. Often, if a bow separator is used, a little sliver of wood or a bit of cotton placed under the bows in contact with adjoining teeth prevents or limits the sliding.

The avoidance of pain in the least degree, when possible, is something every dentist should be alert in, and it goes a long way with our patients. In fact, every movement about the mouth should be as delicate and gentle as possible. Being comfortable in every way possible, instead of being hurt and irritated, will be appreciated; and with care and thoughtfulness much can be done to avoid discomfort. A dentist who is not delicate and gentle, is doing things against his own interests. There is a coarse, rough way of inserting the fingers into the mouth to draw the cheek back, and a delicate way of doing it that at once impresses the patient with your gentle touch and gives confidence. The rough, bungling way of stretching the muscles of the mouth is resented by the muscles themselves and there is an intuitive resistance, while the gentle and gradual effort to do the same stretching accomplishes a good deal more.

Having got sufficient separation, the next thing is to determine just what you want to do—just what to conserve and just what to cut away. No work should be done towards excavating a tooth until, as far as possible, the work is laid out and plans of attack made. When this is done the assault on broken down and frail enamel is made. This is best done in many cases with enamel chisels and hatchets. With the chisel, light blows may be given with the mallet to facilitate the work. When hand pressure is used the thrust must be carefully safeguarded to avoid doing damage not intended by the sudden breaking away of the tooth tissue. In some instances, the use of burrs is indicated in opening up a cavity by removing overhanging or degenerate enamel, though generally more rapid work may be done by cleaving the enamel as above indicated.

Coming to the removal of decay every instrument should be chosen for its adaptability, proper shape and temper, and should be *sharp*. Every sweep and stroke should be made with definite purpose and with firmness and rapidity, the engine burr—always sharp—being utilized as needed.

Time was when dentists had no engine; and burrs, when used at all, were twirled in the fingers. Some of the old operators of times gone by would surprise some of the latter day ones by the rapidity with which they could prepare cavities with chisels and excavators alone. Our later day men are not educated up to the use of hand instruments as they should be, and would be perfectly at sea if deprived of their engine with drills and burrs of a variety

of sizes and patterns. True, with the engine we can prepare cavities that the old-time fellows couldn't do at all, but, all the same, every student to-day should be taught how to do in many cases without the engine. We lean too much on the engine, albeit in one way and another it is perhaps the most valuable part of a dentist's outfit. There are fissure gouges, however, made in rights and lefts and at varying angles that might frequently be used for a good part of the work of opening fissures quicker and with less discomfort to the patient than can be done ordinarily with an engine burr. The hardest place in a tooth to burr, and that which dulls or ruins the burr, often necessitating the use of two or three new ones, is along the hard, sloping enamel walls of fissures, the line of decay not yet wide enough to allow burr to pass through without difficulty. It goes without saying that every fissure should be followed out to the end, or as far as a dark line of decay, ever so small, is to be seen. This cutting out of fissures is not as thoroughly done by many operators as it should be, but that is a mistake if one is trying to do their best work. There are cases, no doubt, where one may understandingly and advisedly refrain from cutting out mere hair line seams, but our filling should not be inserted with the idea of permanency, for in due time decay will recur, requiring further filling.

It is the practice of the author in any case where decay is left in a cavity to first asepticise as thoroughly as may be, then after drying out with a great deal of care, saturating the cavity with some sort of cavity lining that quickly evaporates and becomes dry, such as copal-ether varnish or Dr. A. C. Hewett's "Succinate," the latter having preference since its use was begun about a year ago. The liquid is volatile and penetrating and the residuum a gum of a pure quality containing antiseptic properties, and once dried, is totally unaffected by any moisture, especially such as might be found in the natural moisture of the internal tooth substance.

I believe when any layer of affected dentine is advisedly left in the cavity for any reason, such, for instance, as not wishing to uncover the pulp, or follow out a deep seated seam that requires cutting 19-20 good structure to 1-20 defective—or dark seam—that the treatment above described is the best thing that can be done to suppress the growth of germs prior to introducing a filling of possible permanency. It is better, of course, to eliminate them than to make prisoners of them in the gummy residuum; and, on the other hand, it is not bad practice to use such a cavity lining in almost all cases,

even though we have been unusually persistent to remove all visible decay. An undetected germ left behind is better off, from our point of view, imprisoned in the hardened gum layer than without it.

In all cavity preparation the direction of the enamel rods must be taken into consideration in shaping the orifice. Enamel rods, as a rule, radiate in all directions from the crown of the tooth, the pulp chamber being the central zone. Contrary to this general rule are the arrangement of rods in plates of enamel that dip into concavities and fissures as in molars and bicuspid. Here two enamel surfaces sloping towards each other, forming a V shape, have the rods of course, pitching inwardly instead of outwardly (see Fig. 16), and this must be taken into consideration in chipping and chiseling our enamel margins. In the normal cleavage, margins are left square, and with greatest care are easily defaced and crumbled, and these must be rounded or beveled; first, to avoid crumbling, and, secondly, when such corners are covered by our filling material, the ends of enamel rods that have been cut off are better protected. The degree of beveling should not be over 45 degrees and preferably less. No outer margins should be rounded for the reason that the consequent attenuation of metal margins makes it difficult to distinctly define them. This should be borne in mind, for it is a pretty general practice to do this beveling with flexible emery paper disks and strips, which most certainly leave, not angling corners, but rounded ones.

In this work a good sharp enamel chisel is preferable, to shape up margins, to anything else, touching but lightly afterward with very fine grit disks or strips. The line of demarkation between gold and the tooth substance when the proper shape is given and the filling material properly packed is something that brings joy to an artistic taste. Only the color of the gold betrays the restoration.

Fig. 16 shows the general direction of enamel rods, and a cavity with the enamel rods leaning in at the orifice. The general shape of cavity when prepared for filling is shown by the black lines just around the cavity.

Fig. 17 shows a deeper concavity and illustrates how gold in such an instance may be packed up over and onto the enamel without detriment.

(To be continued.)



**DENTAL THERAPEUTICS.**

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.)

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**CHAPTER XIV.**

Under the heading of heavy metals, we have called attention to mercury and its various compounds relative to their pharmacological action on living protoplasmia. The next in order of classification would naturally fall to that of iron. However, it must be borne in mind that iron differs in many respects from that of any of the other heavy metals, in so far as it seems to be essential to the physiological activity of many, if not all, forms of protoplasmia. In the higher forms of animal life its presence in the living organism is confined almost if not quite to the haemoglobin of the blood. However, its presence in other tissue is so important that it cannot be ignored. In some of the lower forms of the animal kingdom the compounds of this metal are found in the tissue, principally in some other form to take place of that found in the haemoglobin of the blood. Molisch has shown that it is one of the essential elements in the development of certain forms of vegetable life. When its absence is apparent in some of the higher forms of plants they fail to produce chlorophyll, although it does not enter into combination with this last named substance as it does in the case of haemoglobin of the blood of higher forms of animal life.

The combining power of iron with other elements is usually divided into two classes, the organic compounds of iron and the inorganic. The presence of either is easily detected by the addition of ammonium sulphide which gives a black precipitate, or the blue precipitate with the addition of a ferrocyanide or the ferricyanide of potash. The principal inorganic compounds are the chlorides, acetates or sulphates, while the most characteristic organic compound of iron is the haemoglobin and is not always easily detected by many of the tests for iron. An attempt has been made to explain this on the grounds that the iron combined directly with the carbon of the molecule, making it necessary that when tests are made with ammonium sulphide that it takes several hours for the reaction to take place. When such forms as the compound of iron are brought in contact with a solution of proteid albuminate of iron is at once

precipitated. According to the best authorities, this is the form in which it exists in the living animal tissue. This at once demonstrates the fact that its presence in the animal tissue differs in many respects to that of mercury, for it has been conclusively shown that when such compounds as the perchloride of iron have a detrimental effect upon the tissues it is due to the acid condition that is present when the perchloride of iron comes in contact with the solution. The albuminate of iron produces no flocculent appearance as does the mercurial compound, in fact, it has a protective tendency to the tissue, for the corrosive action of iron is limited almost entirely to the surface of the tissue.

It has been observed that the double salts of iron, the albuminous compound or the so-called organic iron does not precipitate proteids, therefore it cannot be classed as an irritant or an astringent so long as they maintain their organic existence. In order to bring about a detrimental action they must be reduced to the simpler salts of iron.

The perchloride of iron when taken internally has an astringent, metallic and sometimes a decided acid taste. When taken in ordinary doses it has no further symptoms, but if administered in large quantities it gives an uneasy painful sensation in the stomach followed by nausea, vomiting and sometimes purging, with all the manifest symptoms of acute gastro-intestinal irritation. If this condition is prolonged for any great length of time a general weakness and collapse may follow.

Up to the present time there have been no observations made that indicate that there is any absorption of iron from the alimentary tract. When any of the inorganic salts of iron are administered for a considerable length of time it is usually followed by dyspepsia, constipation and colic, which has been attributed to the astringent action of the iron compounds on the epithelial structure of the intestinal tract. Some of the conditions observed after the long administration of iron is the darkened condition around the necks of the teeth and a slight irritated condition of the gum tissue, which is attributed to the acid that is in combination with the iron. These compounds coming in contact with the tissue immediately produce disassociation, the iron combining with the proteid substance forming the albuminate of iron, while the acid is set free in the tissue. Such reasoning is logical, however, for the simple fact that when these various solutions are taken through a glass tube or are pre-

vented from coming in direct contact with the gingiva, the various compounds of iron can be administered for an indefinite period without producing these various manifestations on the mucous surface.

The dark discoloration that is produced on the surface of teeth has been attributed to the tannic acid in the food stuff about the necks of the teeth, or to the hydrogen sulphide that is present in a carious condition of the teeth. Either one of these theories may, or may not, be correct. The fact that various sulphur compounds are constantly present in mucus, it would naturally look that the latter theory was most likely the correct one, for the dark discoloration will appear on the surface of teeth where the mouth is perfectly free from dental caries. I tried a few experiments by taking 10 c. c. and adding to that 1-100 of 1 per cent of the perchloride of iron, leaving a tooth in the solution for several days, to find that the cementum would become discolored. This might be said to be caused by the bacterial cell that was in the oral fluid, but it must be borne in mind that the sulphur must have been present, for the mouth was perfectly freed from all food stuff, and the saliva responded to the test for sulphur.

It has been shown that there is a hyperacidity of the gastric juice of the stomach after the administration of the compounds of iron, and that inorganic compounds of iron will retard artificial digestion more than will the inorganic compounds; and the ferric salts hinders digestion more than does ferrous. When iron is administered by the mouth it has but little, if any, effect on the excretions of the amount of double sulphates in the urine, consequently it could not be looked upon as an intestinal antiseptic.

In order to obtain general symptoms of iron it will be necessary to make an intravenous injection of some form of the double salts, such as the sodium and tartrate of iron, which does not have any coagulating effect upon the blood and at the same time removes the ions of the iron in the tissue. When the ferrocyanide and the ferricyanide are administered in the same way they leave the body as such compounds, consequently, there is no breaking up or disassociating and no general symptoms are produced with these two last named compounds.

The experiments of Williams and Meyer showed that the tartrate of double tartrates cause paralysis of the central nervous system in the frog without affecting the heart's action, if any, but the irri-

tability of the muscular fibers were very much diminished. The examination after death revealed the fact that the mucous membrane of the stomach and intestines was swollen and congested, with the appearance of extravasation of blood on the surface of the mucous membrane. Kobert demonstrated that if the citrate of iron was injected in small quantities that the kidneys became congested, casts and albumen would appear in the urine. According to this it would appear that iron in this particular acts as many of the heavy metals, inasmuch as it is a specific irritant to the gastric and intestinal mucous membrane, but that its effect upon the kidneys is very much less than that of many of the other heavy metals.

The early observations of the effects of iron were that it passed comparatively easy into the tissue and there formed the haemoglobin of the blood. But for the last half-century there has been considerable discussion as to its relative value in cases of anaemia and chlorosis. The benefit that seems to arise from the administration of the salts of iron in these diseases has come down through several generations of physicians, and it would seem quite empirical for any one to question its value in these diseases. However, Kletzinsky's observations upon this point expressed his belief that no benefits accrue from its administration in such diseases as above spoken of. His ideas were soon lost sight of, until Bunge formulated a theory which afterwards was spoken of as Bunge's theory, which gained considerable popularity in later years, but has now been almost entirely abandoned, even by the author himself, who claims that the salts of iron is not only absorbed but increases the haemoglobin of the blood.

Owing to the fact that tissues and organs of the body contain more or less iron makes it difficult to trace the iron in the body when administered in any quantity. It is estimated that from 40 to 55 grains are necessary for the healthy maintenance of the ordinary sized human being, most of which is contained in the haemoglobin of the blood. Various estimates have been made as to how much iron was taken in with food stuff. Stockman and Greig have shown that from 1-12 to 1-16 of a grain is taken with the ordinary diet, and that 1-20 to 1-12 of a grain is sufficient to maintain the iron equilibrium in the body. About the same quantity is eliminated to the various excretory channels of the body, but mainly through the feces. The main point in Bunge's theory that iron was not absorbed when administered in the form of an organic or inorganic com-

pound was that the quantity in the urine was not increased. This has been proven to be incorrect, for it has been shown that when a double tartrate has been administered intravenous, only 2 to a 5 per cent of the quantity injected is found in the excretions of the body, showing that the quantity has been stored up in the various tissues and organs of the body, principally in the liver, spleen and bone marrow.

We could discuss at considerable length the experiments and observations of iron in the tissues, but will only say that there is a certain amount of iron taken up and stored in the various organs and tissues when injected intravenous or taken by the stomach. The therapeutic value of iron seems to be principally in diseases known as aneamia or chlorosis. Many cases seem to recover entirely, while others will go for considerable time and again relapse. In these latter cases there is likely to exist a more severe form of aneamia. A number of the diseased conditions known as chlorosis are entirely cured by the administration of compound of iron, while its value in certain forms of aneamia is very much over-estimated. Iron seems to have some value during the process of recovery from some of the acute infectious diseases like typhoid fever, nephritis and malaria.

It is not considered advisable to administer iron in some forms of heart disease and to persons having hemorrhagic tendencies. It has been considered that under certain circumstances it causes hemorrhage of the lungs in persons suffering from tuberculosis, but as to how correct such theory is is yet a question.

The prevailing idea formerly was that iron should be administered in large doses, but of late years its quantity as a dose has been diminished from 2 to 3 grains, three times a day, and the time of day for its administration is after the meal hour, so to, as far as possible, prevent the irritation of the stomach. As we have previously said, iron is injected hypodermically in order that the astringent properties to the stomach will be avoided. A large number of the compounds of iron when injected hypodermically precipitate at the point of injection, and one of the objectionable features of hypodermic injections is that it causes painful swelling and produces considerable discomfort for some little time. According to Kobert's observations this painful condition does not take place if the citrates are used in small quantities, and he considers that if pyro-phosphate and the citrate be used in 5 per cent solutions more beneficial effects

can be obtained. This solution seems to pass readily into the circulating blood and does away with the disagreeable symptoms which are manifested in the hydrates and oxides, which have also been successfully used. It is claimed by some that the peptonate of iron does away almost entirely with the irritating properties so common in the above named preparations.

Erysipelas was one of the diseases the treatment of which with iron at one time gained considerable favor, but later observations revealed the fact that it has but little, if any, value. The ferrous sulphate has been recommended in cases of diarrhea and for external use as an efficient astringent. But the perchloride is looked upon as being the most valuable in cases of hemorrhage, for the simple fact that it precipitates the proteids in the plasma of the blood, causing an obstruction to the small blood vessels. This albuminate of iron resembles in many respects an ordinary blood-clot, but differs in so far as there is no fibrin found in the mass of albuminate of iron. This styptic effect is valuable only where the bleeding comes from the capillary vessels. The chloride of iron has been recommended, but is considered to have but little value except where it can come in direct contact with the bleeding surface. At the present time the perchloride has the preference in such cases as bleeding of the nose or wound from the extraction of a tooth. But the opinion of the best authorities is to the effect that its use in the case of hemorrhage from the stomach and intestines is of but little, if any, value.

Many attempts have been made to trace the distribution of iron in the system, but the observations have not been of sufficient importance to record here; suffice it to say that in local hemorrhages like those above mentioned, the perchloride has a valuable place. In chlorosis and anaemia the various compounds as above mentioned are no doubt of considerable value, and in these two diseases there are some local difficulties in which the medical practitioner and dentist should try to work together. As an illustration, I might mention here a case of a young lady eighteen years of age, who consulted me for some difficulty of the gums and oral mucous membrane. On examination I found a number of well defined pockets extending well down into the alveolus and on the slightest touch would cause pain and bleeding. I treated this case in the ordinary way and prescribed a mouth-wash, recommending that she return to me again in the course of two weeks. On her return I found the gums, so far

as their sensitiveness and bleeding condition, somewhat improved, but the pockets had not closed up in the way they should have if all the conditions had been favorable. I made a blood examination, to find less than three million red blood corpuscles, with an increased amount of leucocytes, with other pathological conditions of the blood. I was at once impressed with the fact that there was more than a local condition to deal with. I then recommended that she consult her physician, which she did, and he was very much surprised that I considered this other than a local difficulty. I had not told the patient or her mother of the condition of the blood, but said that I would like to talk with the doctor in regard to the case. A few days later the physician called me up and we discussed the girl's condition, and he immediately began the administration of arsenic and iron, and in course of a month I saw the girl's mouth again and found a decided improvement in the general oral condition. The young lady in the course of six months had quite recovered.

I might in this connection mention a very similar case, only the condition of the oral cavity was very much worse, in fact, the young lady's general constitution was in a very much worse condition. I was called to see her by her physician in regard to her mouth, and much to my surprise many of the teeth were loose in the alveolus, and seemed it would take but little force to remove them. Her mouth was put in as good a condition as it could be at that time, for she was unable to leave her room, and no one would doubt the unsatisfactory manner in an operation of removing the calcific deposits and treating the pockets around teeth under such circumstances. However, the patient did not recover, and after some five months she died. I saw her three weeks before her death and every tooth in her head was loose, and many of the pockets around the teeth had to be packed with perchloride of iron, for there was almost a constant oozing of blood from around some one of the teeth.

The first case here mentioned illustrates the fact that many times these conditions are not recognized even by the family physician as early as they should be, and it also illustrates the value of iron under such circumstances, for in this case the administration of the iron was stopped for a while and the condition of the patient seemed to be worse.

(To be continued.)

# ORIGINAL CONTRIBUTIONS

**WILLIAM CARY BARRETT, M. D., M. D. S., D. D. S., LL. D.**

(Memorial address delivered in the lecture room of the Chicago College of Dental Surgery, April 7th, 1904, by A. W. Harlan, M. D., D. D. S., professor of Materia Medica and Therapeutics.)

Members of the Faculty, Ladies and Gentlemen—

When it was proposed that I should speak of our late associate and brother, I feared that I could not face you to perform this task, but finally I consented to prepare this brief sketch and give you my estimate of a much loved friend.

Dr. Barrett died at Nauheim, Germany, August 22nd, 1903, whither he had traveled with his wife to regain his strength. He was in the full vigor of life, save an affection of the heart, and looked forward to a ripe old age.

Dr. Barrett was nearly seventy years old, having been born May 13, 1834, in Monroe county, State of New York. He was educated in the common schools of his native state and at the Kingsville Academy, Ohio, Cary Seminary, and Gates Academy, New York. He began the study of dentistry in 1864 and took the examination for the M. D. S. degree in 1868. He practiced in Warsaw, New York, for ten years and then removed to Buffalo. He graduated from the Pennsylvania College of Dental Surgery in 1880 and from the Medical Department of the University of Buffalo in 1881. The degree of LL. D. was conferred on him by the Lake Forest University in 1899. He was professor of dental pathology and comparative dental anatomy in the Chicago College of Dental Surgery, professor of the principles and practice of dentistry and oral pathology in the Dental Department of the University of Buffalo, and dean of the college at the time of his decease.

He was a member of the International Medical Congress, London, 1881; Washington, 1887; Berlin, 1890; member of the National Dental Association, American Medical Association, honorary member of various local and state dental societies; Delta Sigma Delta Fraternity; editor of the *Independent Practitioner*, 1882 to 1888, the



*Dental Practitioner*, Buffalo, 1893-8; author of a text-book on Oral Pathology, now in its second edition, and of numerous papers and brochures.

Dr. Barrett was married in 1857 to Miss Ryerse of Ontario, who survives him.

None of his associates felt that he was even growing old. His step was so light, he was so active and cheerful in all the hours of private life and converse. It seems only yesterday that I saw him, and only a few days before his departure from Buffalo he had written in his forcible way that he was going away for health and recreation. And now—all is over, except our memories of him as he was; the bluff, generous, kindly, hospitable man.

I first saw him in 1875, a little more than ten years after he began to study dentistry. He was living in a little town then, and had already been president of his State Dental Society. I am not certain that he had joined the American Dental Association at that time, but very shortly afterward he began to take an active interest in the meetings, and continued so to do up to the past year, 1902, at Niagara Falls, whence he went to Stockholm, Sweden, as one of the commissioners from the N. D. A., to tender an invitation to the *Federation Dentaire Internationale*, to hold the fourth International Dental Congress in St. Louis in 1904.

Dr. Barrett was elected president of the American Dental Association at Minneapolis in 1885, at the close of one of the largest meetings ever held in this country up to that date. I believe that no national meeting has been more largely attended, unless the meeting at Niagara Falls, in 1899, surpassed it in numbers.

Dr. Barrett was a forceful speaker and an energetic, enthusiastic worker. He acted as chairman of one or two of the sections for twenty years and read many interesting and learned reports and papers.

As he had entered the profession late in life, compared with most of us, he made up the volume of his work in short order, and was always ready and eager to keep on working, working on the subjects which most interested him.

While acting as editor of the *Independent Practitioner* he did more to promulgate the views of W. D. Miller on the causes of decay of the teeth than any one single force in this country. He was a good editor, careful and painstaking; his proofs were well read and his

journal always had something new in its pages. It was a source of great regret to the writer that he relinquished the editorial function. He had had training on a newspaper before he studied dentistry, which was of value to him; and afterwards, in the early years of his practice, he wrote for the press, when his clientele was neither large nor the work lucrative. His papers bristled with his views on all topics, theory, practice, science, education, politics. He always wrote well, even though his editorials were sometimes long. He had views and opinions. He was aggressive, he was a good antagonist—as I had occasion to know—but he was my friend through it all. He never went around sneering at things you might have said or done; he said them to your face. He was firm to obstinacy when he thought he was right. He never straddled a question; he was on one side or the other.

Many times he repeated things to boys in school and before societies, but that was because he was a natural born teacher. It made its impression on the careless listener. He had a large vocabulary and was never at a loss for a word. He was a good debater, and, being a portly man, with a good voice, he could keep an audience awake and always eager to hear more. He was never dry nor prosy. He surrounded the commonest topics with a bouquet of words so skillfully that you were compelled to listen. I have heard the polished Judd, the easy and graceful McQuillen, the enthusiastic Atkinson, the weighty Morgan, and many others speak in our national halls, but Barrett could hold an audience as well as any of them.

He was well read and had a vast fund of information on nearly all topics; he was a good assimilator, he studied hard, worked early and late, but was an investigator in its broadest sense. Many things he knew well, but he made no discoveries. He took the vast stores of information acquired by study and imparted much to others. He was always a fascinating teacher. He wrote a text-book on pathology which is used in many schools. I will not say that it is the best book extant, but it is safe and it is full of valuable teachings.

He gave life and vim to the thoughts of others and added to them. He was a good reasoner. He was kind and liked to be in the company of those younger than himself. He enjoyed sports and travel at home and abroad. I have been with him on three of his visits to Europe. He always entered into whatever he was doing with prompt alacrity.

Many of the midnight hours have found him still at work. He

belonged to numerous societies, both as an active and an honorary member; his push and energy and perseverance built up the school of which he was the head. He surrounded himself with the best men he could get. If he failed to agree with one of his teachers on some vital point, they separated. I always love a man who has enemies; there's good stuff in that man. Dr. Barrett had enemies. He built up the Foreign Relations Committee on the National Faculties' Association and now he is gone!

You will always find that envy has a great deal to do with hindering what is called impartiality. Barrett was as nearly just as it is possible for a man to be who is in the field of politics. He was strictly honest, and his friendship knew no bounds. He was large hearted and was a collector of books, guns, swords, music and of specimens of comparative anatomy.

After talking to him and with him for five or six hours three or four nights in a week, I was always amazed that I had not exhausted his knowledge on subjects dear to me.

If he had a contempt for a man or an idea, he was very likely to express his views. He was not ironical nor given to saying bitter things of persons or men. He hated shams and pretenses, and always did his part in exposing them. He had the courage of his convictions and in consequence of his outspokenness there were many carping critics.

He was a close attendant on the meetings of various associations and liked to gather three or four intimates in his rooms or visit theirs and talk far into the night. He was very serious in his demeanor before students and very impressive with them. He believed thoroughly all that he said to them. He was interested in the affairs of citizenship and devoted much time to public matters. When his college or other duties permitted, he was to be found in his home surrounded by his friends.

Dr. Barrett was a man of commanding presence, more than six feet three inches in height and weighing, perhaps, 250 pounds. He could not come into a room without attracting attention on account of his size and the quickness of his movements.

While he was in the midst of political workers he was never a good politician himself. He was argumentative, even prolix in some of his papers and discussions, still I always felt that he generally made his point, or, if he did not, his position had been clearly stated.

I do not think he will soon be forgotten, because he was a strenuous advocate for the things in which he believed. Many of the familiar faces of the past thirty years in our national gatherings have faded from our midst—Atkinson, Buckingham, Morgan, Winder, McKellops, Wetherbee, Cushing, Hunt, Allport, Eames, Catching, McQuillen, Abbott and others—and to-day we are called upon to mourn the loss of one who had endeared himself to a large circle of personal and private professional friends, and whose name was equally well known throughout the world as one of the vanguard of earnest teachers and whose whole professional life was devoted to elevating the standard of his profession.

We are assembled in this room to-night to pay tribute to the memory of one who but a short year ago stood as your teacher and friend. Now, alas! he has departed to the world unknown. Nevertheless will he look into our eyes or give us greeting as we enter the halls where so many have known him and loved him. He sleeps the sleep that knows no waking, and we pause for a brief moment to garland his tomb and speak the words of our best recollections, of the one departed friend it was our delight to have known in life and our great sorrow to part with forevermore. William Cary Barrett was a man in the full significance of that little understood word. According to his understanding, duty was no fanciful term, but a stern reality. He knew no fatigue or weariness when something had been placed before him to do. Frivolity or pleasure of the moment had no attraction for him in the hour when he was to act. His forgetfulness of self, while it may not have been born in him was the result of much thinking and study, and in the long hours of the night when he was surrounded by the eloquent and silent volumes of the works of others, he evolved for himself a code of action which was based upon the teachings of holy writ and the inspired thoughts of a long line of philosophers, essayists, poets and observers of every phase of human thought and action.

Dr. Barrett, our friend and associate for so many years, did not arrive at full maturity of thought and action until he had had a varied experience in his first youth and his early manhood. He was nearly thirty years of age before he entered this profession. All of the years, from his birth, had been spent in acquiring knowledge in various schools, as a teacher and writer for the press, when suddenly he caught the incense of the professional spirit and straightway he

began his life's work. Many of us have had our thoughts turned towards a profession, even in school-boy days, or some chance acquaintance has suggested that we be doctors or ministers or writers, but for our friend such was not the case. The hour came when he was to receive the call to enter our ranks and he received it as the spoken word of God, and from that moment he never swerved. Many battles had he with his fellows in the forty years that he bore aloft the banner of his profession, his face always forging to the front and his eye fixed on the topmost pinnacle of her achievements. Such was our friend! He was enthusiastic to the last and his plans for the future of this profession were so large and comprehended so much that had he lived to be a centenarian, still much would have been undone. When he was with us we looked upon him as common clay, like ourselves, but now that he has gone we feel his loss—it is too great for words. They are empty, and we feel the blankness of their sound when spoken and their bitterness when we whisper them to ourselves. Sorrow is sacred and the thought that we must speak helps us to realize that our friend is gone, but it does not console us. Time alone will suffice to dull our grief, but it will never efface the bruised and bleeding wounds until the Divine Spirit that guides our footsteps shall bring us face to face with our departed friend and brother.

Many of you knew the subject of our sketch in real life, but none of you knew him as I knew him. I have struggled with him, against him and for him, and through it all he was my friend. Many are the bouts we have had in nearly thirty years, letters by the score have passed one to the other full of sarcasm, irony and deadly facts, but through it all we were friends, and to-night I speak this memorial oration in sadness for the loss of one who was a foeman worthy of my steel. He never misunderstood you, in all the relations of life he used no false sophistry, and honied words were an abomination in his ears, a stench in his nostrils. Before all the world he would champion a cause, and, if defeated, he did not sulk. He spoke the best that was in him and used all of his ammunition when battling for what he believed to be right. Honor and glory to the memory of such a man! I speak to-night to his friends here assembled as the mouthpiece of the faculty of this college, to tell you of the pride we felt in him living and of the sorrow that overwhelms us to know that he is dead. When you feel that

nature's nobleman is in your midst, you have only to stretch out your hand and he is ever ready to help you, to soothe you, to comfort you, to befriend you. Asservations are not needed to be sure of his sympathy and support; he is like the rock of Gibraltar in its massiveness and the certainty that he can withstand any and all assaults for his love of you! This is the man whose memory we seek to implant in your affections; to let you know that in an age of commercialism unparalleled for its hurry and bustle and its pursuit of wealth and power, we stop and scatter a few flowers on the bier of our friend as we lay him away in the silent tomb. Sleep, my friend! Your days of restless activity are over, your work is done, but the recollections of your steadfastness remain with us and your example of lofty unselfishness shall be for us a lasting inheritance.

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### THE THREAD PLACER.

(By Frank A. Brewer, D. D. S.)

I feel I must write more in relation to the thread placers. They are a useful device for the purpose for which they are intended if the dentist fully understands their application. I used them a year previous to my sickness.

The latest model is more accurate and has a hook for cutting the thread. In their use I do away with clamps. In deep-seated cavities the clamps must be carried above (if the upper teeth) the cavities, to do which is often very painful to the patient as well as very depressing to the gums, bruising and compressing them severely, and at times causes a long strain upon the patient's part.

I place the rubber dam in position over the teeth to be operated upon. Apply rubber dam holders and give and draw them and rubber part way or one-half way to the length desired.

Now, I select my silk thread and tie over the tooth to be operated upon; then I apply thread placer and push thread and rubber up above the deep-seated cavity and there secure my thread tightly, having my assistant hold the one-half, tie tightly until I can place the second tie. Now draw my rubber dam holders to position and cut off my thread.

Now I have a clear field without interference of clamp and my patient is free from pain. Proceed to fill and finish. Now with the thread cutter I cut the thread and haul it away.

With this procedure I have had the blessings of my patients and a painless substitute where they suffered when clamp was applied.

We must show a little mercy to our patients. I have found many patients of other dentists patronizing me, leaving other operators who insisted upon the use of the clamp, while I did not.

A clamp will not carry the rubber down beyond a deep-seated approximal cavity. This thread does the work well, and when you are accustomed to it you will like it.

It requires but a few minutes to get the entire application when used to it.

I frequently use cocaine beneath the deep-seated cavity if far up cervically. Again I usually use the thread placers with rubber dam in cleaning teeth. The thread carriers, rub nicely above the scalings.

Hundreds of teeth are gourd shape, the clamp slipping down onto the gum and producing a great deal of pain. I have often to change to the thread on this account.

Now, where the rubber stands off from the gum and interferes, I employ a long thread and do not cut, but carry thread up over the rubber dam and wind around a small pearl button, which is attached upon the wall of the rubber dam holder, or I prefer a band of black elastic braid, which is placed over the head. This has three buttons attached to it.

Merely wind the thread around the button twice or thrice, when it sustains itself tightly, and draws up the rubber dam out of my way.

Whether the clamp is used or not, the dentist will find the thread placer a handy instrument for carrying the rubber to position. The thread, however, does it quicker.

I use it daily in practice and have got so I cannot do without it.



## TOOTHsome TOPICS.

(By R. B. Tuller.)

## No. 10.

Well,

Did you think

I had got through with you?

You put up a bold denial of identity last time.

But I don't believe you can prove an alibi this time.

I recognize you now as the irrepressible, unsuppressible It.

You want to be and really are It. Doctor It.

We all look upon you as i-t—small.

You are a regular Johnny on the spot, but so often on the wrong spot.

You are well satisfied with yourself, even to an elephantine degree.

Your proportions in a way are elephantine. You are a big hot-air balloon.

You'd float off sometimes with your soaring propensities if you could cut loose from your feet.

You are light enough at the top, but heavy at the bottom.

If there is any subject whatsoever under discussion, you always want to "butt in" with your superior (?) opinion.

Say, doesn't it ever occur to you that we get tired and satiated with your voluble preponderance?

I heard a man say that you chewed the rag too much.

Now, I don't think that a nice expression. It expresses a lot, but it is a vulgar way of putting it.

I should say, rather, that you mandibulate with considerable pertinacity a discarded portion of some textile fabric.

And sometimes the portion is decidedly woolly. Now isn't it a fact that you do this mandibular act more than anyone else at every meeting?

Of course you know it, but you frequently say, "Now, gentlemen, I don't want to take up all of your time, but"—

Oh, yes, it is true you say something when *you* talk. You do, indeed.

And then you keep on saying something.

Words, words, words, words, words.

And then you reiterate;

And then emphasize;



And then warm up ;  
And then clinch and wrinkle your brow ;  
And then come to conclusions ;  
And then defy contradiction ;

And then, standing in pose of a wise guy for a monument, you give us a brief relief by saying, "That's all I've got to say *at present*."

We all know what that means. Ten to one you "butt in" to the next speaker, "Pardon me. Just let me say one word right here."

It is a pity the chairman couldn't gavel your head instead of that other block of wood before him.

Sit down, you gazabo, once in a while, and give some one else a chance.

Oh, you do? Well, I guess you do. Sometimes twice and thrice in a while. Sure Mi—— I mean It.

But say, you can't sit down twice and thrice without having been up as many times. H-m? Oh, you're it. You're the "champeen."

How you do love to cross and parry swords (minus the initial "s") with your betters ; men of real wisdom, real strength and real knowledge. It gives you such a chance to make a forensic display.

Ah, that's fruit for you—a battle with the gods—and then you are never done telling in lesser circles how, "My contention with Prof. White was so and so, and to Prof. Trophy I said so and so and he could not gainsay it."

Then you have a reputation of being a "champeen" juggler.

Where does the juggling come in? Why, when you turn backward and forward somersaults and fancy cartwheels and throw bouquets at the quality with tact and precision at the same time.

But, say, you're best in some of your lightning change acts, where you presto change from clown to sage (and reverse) until we don't know which to admire most, your addle head in the first place or your gall in the second.

It doesn't make much difference to you as long as you are it, and attracting attention.

You try so hard to be funny at times. But let me put you next to yourself: You are never so funny as when you begin to recite your remarkable professional experiences—many of them rare.

And yet they come to you so frequently that you are perfectly familiar with all their deep-rooted features, varying phases, peculiarities and serious natures and you speak so glibly of "My habit in

treating these cases after long experience and close observation is so and so."

Let us see; how long ago was it you graduated?—four, five or six years ago?

How long is it that you have been writing I'M IT, D. D. S.?

What is your habit in treating malignant carcinoma, and tic douloureux, and necrotic conditions of the ethmoid cells? You've told us, but I forget.

You are humorous, Dr. It, when you imagine you are sagely serious. How I have been nudged in the ribs when you get to talking wise!

And, say, you are the fellow who has won spurs as a post-prandial orator. In fact, this is where you shine. This is where you are i-tt. Chauncey, go way back and sit down.

You don't care a dum for the dinner and you rarely attend one—unless you are on the program and sit with the real ones at the head table. You don't care for the toast, but you want to be on the toast list. This is where your wit and eloquence dazzles and captives.

Shiny wit. Say, don't shiny wit strike you as being kind of threadbare wit? It does us—we poor common herd fellows; but, of course we laugh. The situation is ridiculous at least and we have to grin.

It is said there is a chump born every minute; hence, the market for gold bricks.

It is one of "them same fellers" that bites a stale joke; hence the ha-ha.

Well, to be honest with you, you are getting to be the joke yourself—and a bit of a stale joke at that.

But that don't faze you any, so long as you're itt.

How often I've seen you shie one of your shiny shafts at some other guests at the table and then throw up your arm as a guard to an imaginary bad egg coming your way. Of course, while the "guard" is all put on, you know blame well you deserve the egg. (Bad egg on toast! Oh, he-he, haw-haw, ho-ho, wow! This is Itt witt. I'm slinging it in as a sample.)

It is when you first rise to your feet that the flutter goes round, "Who's that?" "Why, don't you know? That is Doc Itt—one t ordinarily; two to-night." "Is that Doc Itt? He don't look it."

Never mind! Never mind! Wait till you hear him.

"Mr. Toastmaster and Gentlemen: I was assured by the president of this organization that if I would attend this dinner I would not be called upon for any remarks. I therefore came entirely unprepared to make any. I was astonished, I can assure you, when I sat down here to pick up my program and find my name down to respond to a toast. I fear your president, though a *very* honorable gentleman in most things, has let himself down to a trick to secure some good tal—that is, I mean to say he has let himself down to a trick to get me here. I can assure you, gentlemen, that it is an embarrassing position to be placed in, and especially since the thoughts which I have been trying to collect while at the table have just been iterated by the last speaker—an evidence of how two great minds will sometimes run in the same channel. So close to the text of what I sat up last night and thought out—that is to say, I mean, so close did his speech run to the few thoughts I jotted down while sitting here, that if he was not known to us as a gentleman of the highest integrity, I would be half inclined to accuse him of bribing my office girl and plagiarizing my—I mean, I might suspect him of having looked over my shoulder. You can see, then, gentlemen, that my position is an extremely embarrassing one, for with my thunder taken away from me, not designedly, of course, I am at a loss what to say. If I had the wisdom and eloquence of my friend here, Dr. L. Tennis, whom you all know and delight to hear, I might deliver myself of something to entertain you. As it is you must place the blame where it belongs.

"I can assure you that I am glad to be with you to-night, and I appreciate your kind attention. You will have to excuse my speech to-night, as I have been so very busy lately that I have not had time to think or write out anything, and last evening I had to attend another function where I was also asked to respond to a toast. I know you are disappointed, gentlemen, but I'll have to let you down with a little story. (And a minister being present you thought it smart to take a fall out of him.)

"A minister was walking along one day and found a small boy playing with some soft putty on the steps of his father's shop, his father being a painter and glazier.

"The boy had modeled his putty into something resembling the interior of a church, or the floor plan, with its rows of seats and aisles and pulpit. In the seats were bits of putty representing the

people, but the pulpit was vacant. The kindly minister stopped and asked the boy what he was making. 'A church,' said the boy, proud to be caught in the act by the minister. 'A church?' queried the minister. 'Yes, I see. Here are the seats and the people and here is the pulpit, but where is the minister?' 'I didn't have putty enough to make a minister,' said the lad.

"I thank you, gentlemen." (Uproarious applause and prolonged laughter.)

Say, Itt, you did the best you could, but take a pointer from me and go and get next to yourself.

(Toothsome Topics every month.)

### NEW ANESTHETIC.

Hungarian dentists and chemists claim to have discovered a valuable local anesthetic called "nervocidine," having somewhat similar properties to cocaine, but producing a much more lasting anesthesia. The base of the drug is obtained from an Indian plant, "gasu basu," discovered by Dalma. When ready for use this new discovery is in the form of a yellow amorphous, hygroscopic powder, readily soluble in water. In 0.1 or 0.2 per cent solution it produces marked anesthesia of the cornea, which is very persistent, and when a 0.1 per cent solution is brushed on the mucous membrane of the cheek it gives the same result. Exceeding 0.5 per cent solutions give anesthesia to the parts applied for ten days. Its general effect is that of a paralyzing poison, but it does not appear to produce the same effect by subcutaneous injection that it does when applied to the surface. Although its effect is much more prolonged than that of cocaine, the length of time necessary before this effect supervenes, the irritation caused by the drug and the toxic symptoms it produces do not point to the probability of its being generally used—except, perhaps in dental practice.



**STERILE INSTRUMENTS AND ASEPTIC SURROUNDINGS.**

(Jules J. Sarrazin, D. D. S.)

Read before the Louisiana State Dental Society February 18th, 1904.

At the beginning of the book edited by Dr. E. C. Kirk, immediately following the subjects of Dental Anatomy, Embryology and Histology, and before any operative procedures are considered, Dr. James Truman writes in Chapter IV of the 1900 Edition of the American Text-Book of Operative Dentistry on "Antisepsis in Dentistry." The last paragraphs on page 158 and the first one on page 159 review the instruments and appliances in use in the dental operating room and insist on the importance and necessity of sterilizing those especially which come in contact with the oral mucous membrane. Particular mention is given the rubber dam, which will be forced with ligatures beyond the free margin of the gums, and instruments made notoriously septic by the contents of root canals, which will be called upon to enter other canals subsequently. At the bottom of page 160 and the top of page 161 Dr. Truman points out the danger of transmission of Oral Diseases and insists that "the transitory character of much of dental practice precludes the possibility of any previous history of patients, and therefore every one should be regarded as a possible source of infection." He cites Miller's words that "if, however, the soft tissues have been wounded, as in extraction, *or if the resistance of the mucous membrane has been impaired*, these organisms may gain a point of entrance, and thus become able to manifest their special actions." Page 163 treats the subject of "Infection from Mouth to Mouth" and gives instances of syphilitic and other septic inoculations, while page 164 is devoted to the danger accruing to the practitioner from the handling of instruments not duly sterilized. While the above passages forcibly arrest our attention most especially, the entire chapter should command the careful thought and consideration of our profession.

A fact which needs to be constantly borne in mind is that many pathological conditions, although not patent, produce conditions of oral secretions, some of which are dangerous to transmit to another mouth, even where no abrasion of mucous surface exists, and still more so if such an abrasion is present or is accidentally produced. A corollary proposition is that the fingers coming from the mouth in contact with any instrument or appliance may carry infection to

it, unless it has been possible to scrub the hands thoroughly under conditions when oral secretions will not be re-encountered before meeting another instrument. This becomes a relief from the antiseptic care of instruments touched after the application of rubber dam (provided thorough hand scrubbing has followed), and can conveniently be applied to mallets and pluggers, which admit of proper sterilization less than other dental instruments. Of course, during their use, they must be guarded from contact either with other instruments or from occupying a common resting place with them. These conditions are easily met by a change of doilies over bracket table and cabinet.

On the other hand, the rule must be made and followed of sterilizing any instrument which the fingers touch even at the handle after having been in the mouth, so as to avoid a later transmission with moist fingers from handle contact to another oral cavity. Another and important detail is a change, for each patient, of napkins on which instruments, and tidies on which the head rests. The operator's fingers, wet with saliva at times, meet a tidy on the chair's headrest, and micro-organisms may thus aptly be conveyed from one subject to another, just like a napkin made the resting place for instruments used for different individuals offers the same danger. It is needless to remark that such washables must have been laundered and kept for use under conditions which assure a practical sterility at least, if not a surgical one, which latter would be more difficult to maintain.

Again, unless resting places be properly prepared and kept, instruments cannot be expected to remain sterile after being stored away. Take some ordinarily thick unruled typewriter paper, or some still larger if necessary. Trim it to fit the bottom of every operating room drawer. If you wish to be safe, imbibe it with a ten per cent formaldehyde solution and let dry before placing. Prior to putting instruments back make sure that each has been thoroughly sterilized. This is making the start, and it alone will require more time than some other ordinary care of instruments will waste. Thereafter, a few instruments had better be duplicated to avoid waiting for them with a next patient, but they are few. Mirrors, water syringers, chip blowers, dam bridles, explorers and tweezers will fill this list. All other instruments can sterilize in time to meet their want.

In reality, it is easier to sterilize instruments than to do other cleansing which wastes time and requires greater effort. Three things only are necessary to treat all classes of instruments without injury, and they are simple. Two candy jars tightly covered and partly filled, one with 10 per cent formaldehyde and the other with gasoline, and a steam sterilizer, unless one prefers a dry one or an open pan, which latter is still simpler. I use a steam sterilizer in the water of which a little carbonate of soda is put.

Carbonate of soda is not used as a germicide, of course, but to minimize the danger of rust, although very rapid evaporation of moisture occurs on heated steel. The writer's experience is that the temper of instruments is not affected by steam sterilization. A sterilized gritty elastic rubber eraser, used on sterilized instruments only, does the shining.

The life of micro-organisms will not resist any of the above (except gasoline) much over ten minutes. This is usually as soon as any instrument may be needed from one patient to the other, except those already mentioned, as requiring duplicates. If we will make up our minds that no instrument shall reach its resting place after use without having sojourned ten minutes in one of the above, everything will become easy, safe and reliable.

Boiling or a dry sterilizer will take care of extracting forceps, root canal drills, broaches, root canal pluggers, tweezers, explorers, clamps and their forceps, dam punches, excavators, separators, lancets, matrices, ligature cutters, burs, mandrels, saliva ejectors and mouth props.

A 10 per cent formaldehyde solution will serve previously scrubbed mirrors, rubber dam, stones, dam bridle catches, water syringes, chip blowers and inhalers. Wood intended for shaping into wedges should receive such a bath and be allowed to dry thoroughly and aseptically before being used. New rubber dam should be sterilized before use.

The greatest barrier to aseptic practice is the engine hand piece. Its mechanism will rust from boiling because many of its parts cannot rapidly evaporate moisture while hot on account of their construction. Boiling must therefore be discarded as a habitual constant practice. On the other hand, an array of circumstances must occur to produce infection from the inner mechanism of a hand piece, and this is very fortunate. To do so it would be necessary that secretions or blood would have found their way up the

shank of a burr inside a hand piece used without the dam being in situ, and that micro-organisms resulting therefrom would in turn be carried out the inside of the hand piece by the secretions from another mouth. The danger is greater from burrs (which are boiled to avoid it), and from the outside sheath of hand pieces on which the operator's moist fingers will sojourn. This latter menace is easily met by 10 per cent formaldehyde solution, thorough brushing on the outside of hand piece sheaths after each patient. Should, however, any secretion have entered we must cleanse mechanism without delay. Some circumstances may indicate steam sterilization at all costs. Ordinarily the following treatment will be found convenient and sufficiently effective. Gasoline is friendly to a hand piece's mechanism, of which the sheath is removed. After leaving such a bath it will run easier than ever by being fed with a few drops of oil, and a frequent treatment of this kind keeps it in a beautiful condition. The fact that we are forced to the ownership of more than one hand piece removes any objection to a few minutes bath. Two straight and two angle hand pieces are all that are necessary to meet the requirements of this method.

Operating coats, which are reliably boiled and not mixed in a promiscuous laundry, should be worn and changed as often as suspected of salivary or worse contact even from the operator's fingers; always because our fingers rubbing on a previously tainted article may bring that taint elsewhere. 'Fortunately we are relieved by aseptic doilies, cotton and other preparations which enter the mouth, of any special care in their direction.

Plush upholstery compares unfavorably with leather on a point of even ordinary cleanliness, and cloth-lined instrument trays are about next to incubators in micro-organic breeding qualities.

Before closing, I may remark that the properties of aqua ammonia fortior make it very regretful that it is not available as a sterilizer of the mechanism of hand pieces on account of the wet residuum left after the rapid evaporation of its gas. Kitasato is quoted in G. M. Sternberg's Bacteriology, 1892 edition, testifying to the destruction of the typhoid bacillus in five hours by a 0.3 solution of ammonia.\* It is a good solvent of mucus, pus and blood and possesses the alkaline properties necessary to prevent rust. The above facts are worth mentioning on account of dental applications possible. A skin abrasion finds a bath in ammonia, which is safe if not pleasant. Un-



fortunately, ammonia does not mix either with gasoline or chloroform, which would otherwise rapidly evaporate its residuum, allowing immediate lubrication to follow, and while it does mix with absolute alcohol, the evaporation ensuing is discouragingly slow.

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\*G. M. Sternberg's Bacteriology, 1892 edition, page 176: "AMMONIA,  $\text{NH}_3$ .—In Kitasato's experiments the typhoid bacillus was destroyed in five hours by 0.3 per cent of  $\text{NH}_3$ , and the cholera spirillum by about the same amount. Boer obtained the following results, the time of exposure being two hours: Anthrax bacillus, 1:300; diphtheria bacillus, 1:250; glanders bacillus, 1:250; typhoid bacillus, 1:200; cholera spirillum, 1:350. The growth of the anthrax and of the diphtheria bacillus in culture solutions was prevented by 1:650.



**NEW DENTAL LAW FOR DISTRICT OF COLUMBIA.****(BY Emory A. Bryant, D. D. S.)**

Editor American Dental Journal, Chicago, Ill.—

Dear Sir: I read your notice in regard to the local dental law, etc., and as it does not give the right idea of what we have, I take pleasure in enclosing you the bill and the reports of the house and senate committees upon it, so that you may fully understand its import and publish the same for the benefit of your readers.

You will notice that our law for the past twelve years has allowed all graduates of dental colleges requiring a three-year course to be admitted to practice without examination.

Now I took hold of the matter after the local legislative committee reciprocity feature of the Asheville resolution of the National Association had introduced the bill, and had an amendment put in to cover the society of Dental Examiners. You cannot raise the standard of men five years or more in practice, neither can you make a law retroactive. Therefore, the subject of standards, so far as reciprocity of licenses is concerned, must be made to fit future conditions and not incorporate the past. The man that came into the profession five years ago came in under a lower standard than he could get in at present, and no doubt the man who comes in the coming five years will have to contend with a much higher standard than at the present time. This is the natural result of evolution in all things. There would be no progress without it. If we are to wait till the time when all states have a mutual standard before we have reciprocity, the time will never arrive, for the simple reason that local conditions will dominate the laws of the different states in the future as it has in the past. Our law does not accept the certificate of a state board which gave the applicant the right to practice in that state, but requires a new certificate from that board to our board certifying his competency and moral character. We take it for granted that no state board will give such a certificate to any man who has been in other than reputable practice. I call your attention to the clause: \* \* \* upon the certificate of the board of dental examiners of the state or territory in which he practiced, certifying his competency and moral character \* \* \* etc. That is all the state board has to deal with. First, is he a competent practitioner; and, second, is he of good moral character? The state board has nothing to do with the time he has been in practice, as he

must have been in **LEGAL PRACTICE**, and the original certificate will show on its face if it has been five years or more, and that must be shown here to our board, and our board is the sole judge as to the time. We would expect the applicant to show conclusively that he had been in legal practice for five years or more, and that continuously, too. If the board of another state does not know the man to be competent and reputable, it has no right to give the applicant a certificate that he is. It is their business purely from a professional and moral standpoint to assure themselves of this fact before they certify to the fact. This is a matter of pure volunteer work upon the part of the state boards, and is not made compulsory by any law of the land; therefore, no one can require them to give a certificate unless they wish to of their own accord. We depend purely upon the honor of the state boards to send us none but competent and moral men, and our arms are open to welcome all such. In our reciprocity feature we have the only legal method of keeping the quack within the state lines he originates in, and for good. Quacks are migratory in their practice, and if this reciprocity feature of our law is put upon the statutes of all the states and territories, word for word, without additions or subtractions to suit individual ideas, it will serve as a hangman's noose in which the quack can be choked to death in his own home and not be projected upon other localities. This reciprocity feature can be added to any law of any state or territory in the country and not interfere with its operation or with its standard. This law has absolutely nothing to do with standards, and this fact must not be confounded in dealing with it.

When you look over the laws pertaining to the practice of dentistry throughout the Union, and see the chaotic and various conditions laid down in them, it is enough to make the bravest man heartsick when he attempts to look for some base for a mutual law for all. Each and every state has some local reason or some local lawmaker that is forever in evidence. The high and the low standard, the medium and no standard, graduate and no graduate, diploma and no diploma, etc. Then there is the man who is cock-sure he and he alone can improve any other law ever inaugurated, and he proceeds to cut and slash, add and subtract, and the result is what you now have, a conglomerated mass of unadulterated tommy-rot. I am personally responsible to my profession for this law as a law, but I did not originate it. I took the resolution of the **National**

Association of Dental Examiners and adopted the "specific conditions" laid down by that body. The excuse for the existence of this association was "to further the adoption of uniform laws by all the states." They have been meeting every year since their organization, 1896, and the "Stockton reciprocity resolution" is the first outward evidence of an attempt to carry out the purposes they were organized for. They are now committed to the "specific conditions" laid down in that resolution, and, as the whole country wants, talks and fights for reciprocity, in Heaven's name let the profession insist that it be adopted. I have given you the first reciprocity law; now adopt it, and get what you are crying for, or mutilate it, and stay where you are now, buried by your state laws.

Fraternally submitted,

EMORY A. BRYANT.

The report of the house committee, letter of endorsement from the commissioners of the District of Columbia, together with letters from Dr. Bryant and Dr. Stockton, follow:

58th Congress, second session. House of Representatives. Report No. 384.

### **REGULATING THE PRACTICE OF DENTISTRY IN THE DISTRICT OF COLUMBIA.**

January 18, 1904.—Referred to the House Calendar and ordered to be printed.

Mr. Wiley of New Jersey, from the committee on the District of Columbia, submitted the following

#### **REPORT.**

(To accompany H. R. 8327.)

The committee on the District of Columbia, to whom was referred H. R. 8327, to amend an act entitled "An act for the regulation of the practice of dentistry in the District of Columbia, and for the protection of the people from empiricism in relation thereto," approved June 6, 1892, report the same back to the House with the recommendation that it do pass with the following amendment:

Strike out the period after the word "act," at the end of line 6, and add the following:

*"Provided, That the board of dental examiners may issue a license to practice to any dentist who shall have been in legal practice for a period of five years or more, upon the certificate of the board of dental examiners of the state or territory in which he practiced, certifying his competency and moral character, upon the payment of the certification fee and without examination as to his qualifications."*

This bill was drafted by and introduced at the request of the commissioners of the District of Columbia. Their letter on the subject is as follows:

OFFICE COMMISSIONERS OF THE DISTRICT OF COLUMBIA,

*Washington, Dec. 17, 1903.*

SIR: The commissioners of the District of Columbia have the honor to transmit herewith a draft of a bill to amend an act entitled "An act for the regulation of the practice of dentistry in the District of Columbia, and for the protection of the people from empiricism in relation thereto," approved June 6, 1892, and recommend its enactment.

The object of the bill is to subject all applicants for registration as dentists, whether graduates or non-graduates, to an examination by the board of dental examiners, by the repeal of the present provision exempting from such examination all persons who hold a diploma from a dental college, regardless of its standing, which requires a three years' course of study. The proposed legislation is resigned to put the law on the subject of the practice of dentistry practically in harmony with the statutes of other states and territories in that regard. At present all the states and territories, including Cuba, Porto Rico, and the Philippines, and excepting Indian Territory and Alaska, have more stringent dental requirements than the District of Columbia, in that the most lenient of state dental laws require that those admitted to registration without examination as to qualifications must be graduates of reputable dental colleges of recognized standing.

Very respectfully,

HENRY B. F. MACFARLAND,

*President Board of Commissioners, District of Columbia.*

HON. J. W. BABCOCK,

*Chairman Committee on the District of Columbia,  
House of Representatives.*

The provision in the act approved June 6, 1892, which the bill as drafted by the commissioners proposes to strike out is as follows:

*Provided, That all graduates of dental colleges which require a three years' course of study shall be entitled to certificates upon payment of the certification fee and without examination as to their qualifications.*

Since the introduction of this bill the representatives of the dental profession in the District of Columbia have secured the indorsement and approval of the commissioners for the substitution, in lieu of the above provision of the present law to be stricken out, of what is known as the "reciprocity clause," which your committee has reported favorably as an amendment.

The commissioners' letter on this subject is as follows:

OFFICE COMMISSIONERS OF THE DISTRICT OF COLUMBIA,

*Washington, January 12, 1904.*

SIR: The commissioners have the honor to recommend favorable action upon the "Amendment intended to be proposed by Mr. Stewart to the bill (S. 2795) to amend an act entitled 'An act for the regulation of the practice of dentistry in the District of Columbia, and for the protection of the people from empiricism in relation thereto,' approved June 6, 1892," which was referred to them at your instance for their views thereon.

Very respectfully,

HENRY B. F. MACFARLAND,

*President Board of Commissioners District of Columbia.*

HON. J. H. GALLINGER,  
*Chairman of Committee on the District of Columbia,  
 United States Senate.*

*Amendment intended to be proposed by Mr. Stewart to the bill (S. 2795) to amend an act entitled "An act for the regulation of the practice of dentistry in the District of Columbia and for the protection of the people from empiricism in relation thereto," approved June 6, 1892.*

Add at the end of the bill the following:

"And inserting in lieu thereof the following:

"*Provided, That the board of dental examiners may issue a license to practice to any dentist of another state or territory who shall have been in legal practice for a period of five years or more upon the certificate of the board of dental examiners of the state or territory in which he practiced, certifying his competency and moral character, and upon the payment of the certification fee, without examination as to his qualifications.*"

Your committee is informed that at a meeting of the National Association of Dental Examiners, held at Asheville, N. C., in August, 1903, the resolution which appears below was adopted, and an effort is being made to have it enacted into law in every state and territory in the United States; also, that the states of New Jersey, Indiana, Ohio, New York and Pennsylvania have adopted this regulation, their state boards having authority to do so without the action of the state legislatures:

*Resolved, That an interchange of license to practice dentistry be, and is hereby, recommended to be granted by the various state boards on the following specific conditions:*

Any dentist who has been in legal practice for five years or more, and is a reputable dentist of good moral character, and who is desirous of making a change of residence into another state, may apply to the examining board of the state in which he resides for a new certificate which shall attest to his moral character and professional attainments, and said certificate, if granted, shall be deposited with the examining board of the state in which he proposes to reside, and the said board in exchange therefor may grant him a license to practice dentistry.

The main features of this bill as amended are: First, the district law is placed on a par with that of other states; second, it is in line with the recommendation of the National Association of Dental Examiners as far as the reciprocity clause is concerned; third, the bill as amended has the active support of all leaders in the dental profession of the District of Columbia, as well as that of all of the officers of the dental society.

The following letters indorsing the measure are made a part of this report:

STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY,  
*Newark, N. J., Dec. 29, 1903.*

MY DEAR SIR: I inclose you a copy of the resolution passed unanimously by the national board of examiners held at Asheville last August.

Dentistry does not want to take a back step. It is now requisite here to

have an education equal to the high school first, and then the candidate must spend four years in a dental college, and then they go before a state board to get their license. This resolution is for interchange and is all right, and if the District will enact it it will be a good thing for dentistry throughout the country. I can say to you it is all right.

Very truly,

HON. W. H. WILEY.

CHARLES S. STOCKTON.

WASHINGTON, D. C., Jan. 3, 1904.

DEAR SIR: You introduced a bill in the House in December (have not a copy at hand) to amend an act entitled "An act for the regulation of the practice of dentistry in the District of Columbia," etc., by striking out the proviso of section 3 of said act. I have the honor to request that your honorable committee add to this bill, in lieu of the part to be stricken out, the following, adding same to bottom of present bill, viz.:

*"Provided, That the board of dental examiners may issue a license to practice to any dentist of another state or territory who shall have been in legal practice for a period of five years or more, upon the certificate of the board of dental examiners of the state or territory in which he practiced, certifying to his competency and moral character, upon the payment of the certification fee and without examination as to his qualifications: Provided, however, That dentists of the District of Columbia are admitted to practice in such state or territory upon the same terms."*

The above amendment, which I greatly desire to have incorporated into our law, is in direct line of that adopted in law for applicants who may desire to practice before the supreme court of the District of Columbia and of the United States. It is in line with present efforts of the medical profession as is the case with the examining boards of medicine, etc., in the states of Indiana, Ohio, Iowa, Kansas, Michigan, and Wisconsin, who at a meeting jointly held April 23, 1903, in Chicago, Ill., at which an agreement was drawn up and made effective under rules laid down which permits of an interchange of licenses between these states by the boards representing them.

At the annual meeting, in 1903, of the National Association of Dental Examiners of the United States, incorporated, which represents the dental examining boards of the different states, the following resolution was fully discussed and passed:

*"Resolved, That an interchange of license to practice dentistry be, and is hereby, recommended to be granted by the various state boards, on the following specific conditions:*

*"Any dentist, who has been in legal practice for five years or more, and is a reputable dentist of good moral character, and who is desirous of making a change of residence into another state, may apply to the examining board of the state in which he resides for a new certificate which shall attest to his moral character and professional attainments, and said certificate, if granted, shall be deposited with the examining board of the state in which he proposes to reside, and the said board, in exchange therefor, may grant him a license allowing him to practice dentistry."*

The chief advantage of this scheme of interchange is that it reaches at once just that class who have the best right to ask interchange without examination, viz., those legitimately in practice for a number of years, or for a period long enough to render it a hardship to pass an examination, the standard of which is as various as the states and their laws. As a member of my profession interested in its welfare, member of the local and the national dental associations, and vice president of the Interstate Dental Fraternity for the District of Columbia, I ask most respectfully to be allowed a hearing before your committee when this bill is considered. I inclose you copy of the Senate bill, which is identical with the House bill which you introduced. The above resolution was passed July, 1903.

Respectfully submitted,

EMORY A. BRYANT.

January 3, 1904.

JOSEPH W. BABCOCK, M. C.

*Chairman Committee on the District of Columbia,  
House of Representatives, Washington, D. C.*

WASHINGTON, D. C., Dec. 19, 1903.

DEAR SIR: I am directed by the legislative committee of the District of Columbia Dental Society to respectfully request that your honorable committee grant us a hearing at any time convenient to yourself, when we can present for your consideration a number of very urgent reasons why the bill introduced yesterday in the House of Representatives, revising the present dental law of the District of Columbia, should be enacted into law as soon as possible.

Trusting to hear favorably from you at your early convenience.

Very respectfully,

H. J. ALLEN, M. D.,

*Secretary, Committee on Legislation,  
District of Columbia Dental Society.*

HON. J. W. BABCOCK,

*Chairman, District of Columbia Committee,  
House of Representatives, Washington, D. C.*

### DR. DESAXE'S BEQUEST.

Henry J. Desaxe, a dentist, who died recently, left a will, in which he bequeathed \$3,000 to Miss Jennie McConnell, explaining as follows:

This bequest is made for deep appreciation of her friendship and kindness when, some years since, being ill and contemplating leaving for a vacation, she offered to loan me every dollar she had, being under the impression that I could not afford the expense of the trip contemplated. The extreme kindness of that offer made a deep impression, and the bequest is given also to help a good, noble, moral, self-supporting woman when old age shall have come.

Dr. Desaxe left an estate valued at \$15,000, and consisting entirely of personal property.







# EDITORIAL

## GOVERNOR YATES AND THE ILLINOIS DENTAL BOARD.

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Those who were present at the meeting of the Illinois State Dental Society last year will call to mind the excitement that was occasioned by the report being circulated that the governor would veto the dental bill that had just passed the Senate. The Illinois State Dental Society appointed a committee to go to Springfield to wait upon the governor and see if he could not be induced to reconsider his decision and sign the bill, which had previously passed both houses. The governor, however, stood firmly by his first decision, and claimed the bill was unconstitutional.

The committee returned to Bloomington and reported that they had absolutely failed to accomplish their mission. Every high-minded and ethical dentist in the State of Illinois desired the passage of this bill, and, we believe, it was thought at that time that had the governor sought renomination and re-election a vigorous fight would have been instigated against him by the dental profession of the State of Illinois.

Now, almost a year has passed, and we believe if the profession knew how loyally the governor has stood by the Illinois Dental Board during the year they would entertain different emotions than they did at that time. He has not only stood firmly by the present board, but that he wants the people of the State of Illinois to be protected against the practice of incompetent men, and to prevent, so far as possible, the running of bogus colleges, is demonstrated by the fact that he is determined to keep the standard of our dental board where it should be, and has appointed men of the highest type of professional manhood to fill the present vacancy.

In this connection, we have the pleasure of making note of the fact that the governor has appointed Dr. C. R. Taylor of Streator, Ill., and has also signified his intention of appointing another member of the profession who stands high in the estimation of his fellow practitioners. When his name is mentioned in connection with such an appointment it will only illustrate the fact that the governor can, and wishes to serve to the best interest, the poor unfortunate individuals, who may have to seek services from the hands of the dental profession.

We believe that when these facts are known that every dentist in the State of Illinois will feel as Hamlet felt when he said, "It is better to bear the ills that we have than to fly to those we know not of."

G. W. C.

# REPORTS OF MEETINGS

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## SOCIETY ANNOUNCEMENTS

### STATE SOCIETY MEETINGS.

- Alabama Dental Association, Anniston, May 9.  
Arkansas State Dental Association, Little Rock, May 10, 11, 12.  
California State Dental Society, San Francisco, May 16, 17, 18.  
Connecticut State Dental Association, Hartford, April 19, 20.  
Delaware State Dental Society, April 6.  
Florida State Dental Society, Atlantic Beach, May 25.  
Georgia State Dental Society, Athens, June 28.  
Illinois State Dental Society, Peoria, May 10, 11, 12.  
Iowa State Dental Society, Des Moines, May 3, 4, 5.  
Indiana State Dental Association, Indianapolis, June 14, 15.  
Kentucky State Dental Association, Louisville, May 17, 18, 19.  
Kansas State Dental Association, Topeka, May 12, 13, 14.  
Maine Dental Society, Bangor, July 19, 20, 21.  
Massachusetts Dental Society, Boston, June 1, 2.  
Michigan State Dental Association, Lansing, June 28, 29.  
Minnesota State Dental Association, St. Paul, June 16, 17.  
Mississippi Dental Association, Jackson, April 19, 20, 21.  
Montana State Dental Society, Butte, Feb. 2-21.  
New Hampshire Dental Society, Concord, May 10-11.  
New Jersey State Dental Society, Asbury Park, July 21, 22, 23.  
New York State Dental Society, Albany, May 13, 14.  
Oklahoma and Indian Territory Association, Shawnee, O. T., May 10, 11 and 12.  
North Carolina Dental Society, Morehead City, June 22-25.  
South Dakota, Aberdeen, S. D., June 7.  
Tennessee State Dental Association, Jackson, May 26, 27, 28.  
Texas State Dental Association, Corsicana, May 5, 6, 7.  
Vermont State Dental Society, Montpelier, March 16, 17, 18.  
Washington State Dental Society, Seattle, May 26, 27, 28.  
Wisconsin State Dental Society, Manitowoc, July 19-21.

**NATIONAL SOCIETY MEETINGS.**

National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.

Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.

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**MICHIGAN STATE BOARD.**

The State Board of Examiners for Michigan will meet in  
Grand Rapids, Mich., May 10, 1904. Respectfully,

W. C. MCKINNEY, Secretary.

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**ARKANSAS STATE DENTAL ASSOCIATION.**

The Arkansas State Dental Association and the Arkansas State  
Dental Board will meet at Little Rock May 10, 11, 12.

P. A. SKEEN, Sec.-Treas., A. S. D. A.,  
Texarkana, Ark.

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**EASTERN INDIANA DENTAL SOCIETY.**

The annual meeting of the dentists of eastern Indiana will be held  
in Richmond May 3 and 4. The program committee announced that  
the principal addresses will be delivered by Dr. Fletcher of Cincinnati.  
President Kelley of Earlham College will deliver the address  
of welcome.

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**NORTHERN INDIANA DENTAL SOCIETY.**

The 16th annual meeting of the Northern Indiana Dental Society  
will be held in Huntington, Indiana, on October 4th and 5th,  
1904. Arrangements are being made to make this the greatest convention  
ever held in Northern Indiana. Already some of the best talent in the  
country has been secured.

OTTO U. KING, Secretary.

King Building, Huntington, Indiana.

**SOUTHERN WISCONSIN DENTAL ASSOCIATION.**

The tenth annual meeting of the Southern Wisconsin Dental Association will meet in Beloit, Wis., June 8 and 9, 1904. We anticipate a pleasant as well as a profitable meeting, and a cordial invitation is extended to all.

C. W. COLLVER,  
Secretary, Clinton, Wis.

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**INDIANA STATE DENTAL ASSOCIATION.**

The forty-sixth annual meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, Ind., Tuesday, Wednesday and Thursday, June 14, 15 and 16th.

Drs. J. E. Weirick of St. Paul and J. E. Nyman of Chicago will be among the essayists. The executive committee has arranged for a number of good papers and clinics.

Railroad rates on all roads in Indiana. Address,  
J. Q. BYRAM, Indianapolis, Ind.

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**ILLINOIS STATE BOARD OF DENTAL EXAMINERS.**

The next regular meeting of the Illinois State Board of Dental Examiners to examine applicants for license to practice dentistry in this state will be held in Chicago May 6 and 7, 1904.

Under an opinion of the attorney-general the following are eligible to take the examination before the board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to moving into the state, and anyone who failed to register in this state at the time the law went into effect, which was in 1881."

Candidates must furnish their own patients and come provided with the necessary instruments, rubber dam and gold to perform practical operations and such other work as is deemed advisable by the board. Those desiring to take the examination should matriculate with the secretary at least ten days before the date of meeting. The examination fee is \$10.00. Any further information can be obtained by addressing the secretary.

J. G. REID, Secretary,  
1204 Trude Bldg., 67 Wabash Ave., Chicago.

**ILLINOIS STATE DENTAL SOCIETY.**

The fortieth annual meeting of the Illinois State Dental Society will be held at Peoria Tuesday, Wednesday and Thursday, May 10th, 11th and 12th. A splendid programme, including attractive and unusually interesting features, is under course of preparation. The usual fare of one and one-third—certificate plan—will be obtained on all roads in the state and from St. Louis. Remember the date. All reputable practitioners cordially invited.

HART J. GOSLEE,  
Secretary, 580 Madison St., Chicago.

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**DAKOTA STATE BOARD OF DENTAL EXAMINERS.**

The South Dakota State Board of Dental Examiners will hold its next regular session for the examination of applicants for license at Aberdeen, S. Dak., June 9th, beginning at 1:30 p. m. All applicants will be required to insert at least two gold fillings, and such other work as the board may require. Besides the regular operating instruments, each candidate is required to bring a bridge of not less than four teeth, including one Richmond crown and one molar shell crown, invested ready for soldering. Application must be made to the secretary at least one week before examination takes place.

G. W. COLLINS,  
Secy. S. Dak. State Board D. Ex.

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**WISCONSIN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice dentistry in Wisconsin will be held in Milwaukee, at Hotel Pfister, June 1, 1904.

Application must be made to the secretary fifteen days before examination. Candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

J. J. WRIGHT, D. D. S.,  
1218 Wells Bldg., Milwaukee, Wis., Secretary.

**AMERICAN DENTAL JOURNAL****PLAN MAMMOTH BANQUET.**

Plans for a banquet for 3,000 guests were discussed by members of local committee on arrangements for the fourth International Dental Congress at a meeting held March 18 in St. Louis. The congress will convene in the Coliseum during the week beginning August 29. The banquet will be served on the evening of September 1.

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**CHICAGO DENTAL SOCIETY.**

At the annual meeting of the Chicago Dental Society held April 5, the following officers were elected: T. L. Gilmer, president; C. N. Thompson, first vice-president; F. V. Yorker, second vice-president; Winthrop Girling, recording secretary; A. E. Morey, corresponding secretary; C. P. Pruyn, treasurer; J. H. Woolley, librarian.

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**McLEAN COUNTY DENTAL SOCIETY.**

The McLean County Dental Society held its regular monthly meeting at Bloomington, Ill., March 14. The paper of the evening was read by Dr. B. M. Vandervoort on "A Painless Method of Removing Pulp of Teeth." The new method as brought out in the paper is by applying cocaine and adrenalin chloride under pressure direct to the pulp. The discussion was opened by Drs. F. H. McIntosh and J. W. Crigler, and was then freely discussed by all present. Dr. M. D. Young gave a clinic on repairing of pins in bridge work.

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**OKLAHOMA AND INDIAN TERRITORY DENTAL ASSOCIATION.**

The Oklahoma and Indian Territory Dental Association will meet at Shawnee, O. T., May 10, 11 and 12. It is expected that over 100 members will be present, besides a number of visitors from other states. Several men of prominence in the dental profession will have places on the program. The present officers of the association are: President, Dr. Coulter, Oklahoma City; secretary, Dr. Theodore Bringham, Shawnee; Dr. Wallace and Dr. Wells of Shawnee and Dr. Hillburn of McLoud are the executive committee.

**SEVENTEENTH DISTRICT DENTAL SOCIETY OF NEW YORK.**

The new officers of the Seventh District Dental Society, elected March 30, are: President, L. S. Goble, Rochester; vice-president, C. C. Bachman, Waterloo; recording secretary, C. F. Bunbury, Rochester; corresponding secretary, G. G. Burns, Rochester; treasurer, LeRoy Requa, Rochester; delegate to state society, C. F. Bunbury, Rochester; C. W. LaSalle, Rochester, and C. J. Barber, Auburn.

**COMMITTEE OF NATIONAL ASSOCIATION VISITS COLLEGE OF PHYSICIANS AND SURGEONS AT MILWAUKEE.**

A committee of the National Association of Dental Faculties inspected the curriculum and equipment of the Wisconsin College of Physicians and Surgeons. The committee consisted of Dr. A. O. Hunt, dean of the dental department of the University of Nebraska, Omaha; Dr. G. H. Wilson, dean of the dental department of Western Reserve University of Cleveland, O.; and Dr. L. P. Berthel, dean of the Ohio University, Columbus, O. After their inspection of the college they were entertained at the Deutscher Club by the members of the Milwaukee Odontological Society, and the visiting dentists by special request of the society, read papers touching on current topics of interest in the dental world.

**TENNESSEE DENTAL BOARD.**

Rogersville, Tenn., March 28, 1904.  
Editors American Dental Journal, Chicago, Ill.—

Dear Sirs: In your journal of February, the enclosed leaflet appears, announcing "New Tennessee Dental Board," which is not correct. Will you please make the correction? The members of the Tennessee Board of Dental Examiners are, as seen at the heading of this page, two of whom have been members since 1891.

Very truly, your friend,

F. A. SHOTWELL, Secretary.

**PERSONEL OF PRESENT BOARD.**

Dr. W. H. P. Jones, Nashville, Tenn., president.

Dr. F. A. Shotwell, Rogersville, Tenn., secretary-treasurer, 1891.

Dr. J. M. Glenn, Jackson, Tenn.

Dr. John R. Beach, Clarksville, Tenn.

Dr. Southall Dickson, Bolivar, Tenn.

Dr. S. B. Cook, Chattanooga, Tenn., 1891.

The list referred to should have been headed "New Mississippi Dental Board."

**SOUTHERN DENTAL SOCIETY OF NEW JERSEY.**

At the annual meeting of the Southern Dental Society of New Jersey, held Jan. 20, 1904, the following officers were elected: President, Alphonso Irwin, Camden; vice-president, W. A. Jaquette, Salem; recording secretary, Stanley Ironside, Camden; corresponding secretary, C. Ironside, Camden; treasurer, Mary A. Morrison, Salem; librarian, J. Y. Halsey, Sweedesboro; executive committee, W. W. Crate, J. G. Halsey, C. P. Tuttle, C. P. Tuttle, Jr., O. E. Peck, E. E. Bower; membership committee, Alphonso Irwin, W. H. Gelston, W. A. Jaquette.

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**THE ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA.**

About 100 members of the Odontological Society of Western Pennsylvania attended the annual meeting.

The following officers were elected: President, Dr. S. M. Stauffer, Pittsburg; vice-president, Dr. W. S. Cook, Beaver Falls; secretary, Dr. B. M. Loar, Mount Pleasant; treasurer, Dr. B. M. Libbey, Pittsburg; executive council, Dr. C. B. Bratt, Allegheny; Dr. G. W. Gage, Pittsburg.

Papers were read by Dr. L. P. Bethel, Columbus, O.; Dr. I. M. Broomell, Philadelphia; Dr. F. B. Noyes, Chicago, Ill.

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**RED RIVER DENTAL ASSOCIATION.**

A number of dentists gathered March 22 at Crookston, Minn., for the purpose of organizing a society to include all those residing in the valley and on the line of road into the pine country. The name given to it is the Red River Valley Dental Association, and it is the purpose to meet at least four times a year. The next meeting will be held at the Forks, but the date has not been decided upon. Dr. W. A. Robertson of Crookston was elected president; Dr. J. E. Argue of Red Lake Falls, vice-president; Dr. F. J. Boles of Crookston, secretary, and Dr. S. Rowan of Hillsboro, N. D., treasurer. The board of directors and the different committees were also appointed.

After they had completed their business they repaired to the Firemen's Hall, where the banquet tables were spread. Dr. Thomas Spence was toastmaster.

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**MONTANA STATE DENTAL SOCIETY.**

The Montana State Dental Society met Feb. 22-23 at Helena and formed a permanent organization. Officers were elected and much enthusiasm shown.



## NEW DENTAL COLLEGE FOR CANADA.

A department of dental surgery will be established at Laval University next October. This was the decision reached recently by the university council at Quebec as a result of negotiation on the part of the Dental Association of the Province of Quebec with both Laval and McGill universities.

The new department will be called "Laval University School of Dental Surgery."

The board of governors and administrators of Laval University of Montreal have allotted to the school, in their premises on St. Denis street, the necessary space for laboratories, lecturers' and professors' rooms. The lectures at the new school will begin next October. The curriculum will extend over four years, and the successful candidates in the final examination will receive the degree of "Doctor of Dental Surgery." The Dental Association of the Province of Quebec will stand toward the school in the same position as does the College of Physicians and Surgeons of this province toward medical schools—viz., they will send assessors to be present at the examination of those under matriculation, and upon favorable report from the assessors, the association will deliver a diploma of "Licentiate in Dental Surgery," allowing the bearer to practice in this province. McGill University having decided to give dental education to English-speaking students, the association will act the same toward their candidates.

The dean of the Laval University School of Dental Surgery will be Dr. E. Dubeau, who has been largely instrumental in the bettering of the conditions for the instruction of dental surgery. Dr. Dubeau has been secretary of the board of examiners of the Dental Association of this province.

Dr. Joseph Nolin has been appointed vice-president and registrar, while Dr. J. G. A. Gendreau will act as secretary and treasurer of the new dental school at Laval.

At McGill Dr. Roddick, dean of the faculty of medicine, will be the dean of the new dental branch, as it will only be considered a department, not a separate faculty.

As a result of these new arrangements the Dental College of the Province of Quebec will be abolished at the end of the session.

**THE SOUTHEASTERN IOWA DENTAL SOCIETY.**

With an attendance of over sixty practicing dentists of the southeastern portion of the state, the first meeting and clinic of the temporarily organized Southeastern Iowa Dental Society met at Ottumwa Feb. 17. Dr. J. E. Fleener of Oskaloosa occupied the chair, and Dr. C. M. Work of Ottumwa was secretary.

Dr. F. F. Stoltz, pastor of the First Presbyterian church, delivered the invocation. "The Advantages of a Dental Society," a paper prepared by Dr. I. P. Wilson of Burlington, the oldest member of the state society and reputed the dean of southeastern Iowa dentists, was read by Dr. A. W. Dana of Burlington, owing to the inability of Dr. Wilson to be present.

The session opened at 1:30 o'clock with a clinic, "A System of Record and Account Keeping," by Dr. J. W. Martin of Muscatine. Following Dr. Martin, Dr. A. W. Dana of Burlington gave a clinic on "Porcelain Inlay." The other clinics which were given were: "Gold Filling—Using Combination of Non-cohesive Crystal and Cohesive Gold," by Dr. C. E. Hoag of Wapello; "Seamless Gold Crown," by Dr. C. G. Hoover of Albia, and "Porcelain Crown," by Dr. F. T. Breene of Iowa City, who is professor of operative dentistry in the college of dentistry of the state university. The clinics attracted the closest attention, and proved both interesting and instructive.

The following is in part the paper prepared by Dr. Wilson and read by Dr. Dana:

"It is fitting at this time to consider the importance of organization and the advantages of a dental society in this somewhat neglected part of the state. The benefits to be derived from organization and co-operation are threefold—first, to the individual; second, to the profession, and, third, to the community in which we live.

"As we assemble together in a dental society with lofty motives in view, we cannot fail to advance the best interests of all concerned. It may be well at this time to speak a word of warning, and what we may say may apply to many of our local and state societies. We refer to the custom of having 'a good time' or an 'outing,' as some of our members term it, at these annual gatherings. Some of our ablest men in the profession are so much needed in strengthening and promoting the best interests of our society meeting have deliberately made other engagements for the special purpose of having a pleasurable time, and at the expense of our society's best interests.

It is to be hoped, too, that business meetings by committees will not be planned for the special purpose of transacting the business of the society at improper times. It is not an unusual thing for many of the most valuable members of our society to absent themselves from our meetings for the purpose of transacting committee work in adjacent rooms, while the reading and discussion of papers are going on at the same time. While committees thus impose upon themselves laborious work with the best of motives, at the same time the society sustains a great loss, and the absent members themselves learn from hearsay of the transactions that have taken place. Will it not be to the best interest of our newly organized society to make these meetings second to no other interest, but aim to be present, and take an active part in all the transactions of our meetings. Let us all work together. In union there is strength. Let the program be so arranged that all the members may be present during the sessions. We owe this to the society and to the individual members.

"The public has a right to expect the practitioners of to-day to be up to date and not reproduce the exploded theories of the past. Our profession has by no means come to a standstill, and the public recognize that fact. Our patients often remind us of the progress that has been made in dentistry since their fathers' time, and the laity has a right to expect greater progress to follow each successive generation.

"This is no reflection on the profession of yesterday, while it is a shame to those of to-day who are satisfied with the past. Then, my brethren, press on to greater and higher attainments than others obtained before you. By so doing you will honor the dental profession and prove a blessing to the community in which you live."

The association adjourned after selecting Burlington as the place of the next meeting and electing these officers:

President—Dr. C. M. Work, Ottumwa.

Vice-president—Dr. A. W. Dana of Burlington.

Treasurer—Dr. E. C. Bock, Fairfield.

Executive committee—J. T. Martin of Muscatine, B. C. Hinkley of Keokuk, H. L. Madison of Burlington.

#### **FOX RIVER VALLEY DENTAL ASSOCIATION.**

Twenty-five representatives of the dental profession gathered in Appleton, Wis., March 8, their object being to organize the Fox River Valley Dental Association. The meeting opened with Dr. W. H. Chilson as temporary president and L. H. Moore as temporary secretary.

After greeting by the president and reading of the by-laws and constitution, officers were elected as follows:

President—Dr. W. H. Chilson, Appleton, Wis.

Vice-president—Dr. J. W. Madden, Fond du Lac, Wis.

Treasurer—Dr. F. R. Houston, Green Bay, Wis.

Secretary—Dr. Hastings, Oshkosh, Wis.

Dr. Hastings of Oshkosh was the only feminine member of the profession present. She has been practicing for four years in Oshkosh, one of the eighteen women dentists in Wisconsin.

The newly elected officers responded to calls for speeches. A pretty incident of the afternoon was the election of Dr. Byron Douglas to the position of honorary president. Dr. Douglas was very ill, being confined to his bed, and unable to attend the meeting.

This meeting of the dentists of the Fox River Valley was for the purpose of promoting good fellowship among the members of the profession and for the furtherance of their art by holding clinics.

A banquet was given in the evening, at which Dr. W. F. Gary presided as toastmaster, and a toast by Dr. R. E. Kanouse on "Our Guests," and one by Dr. F. R. Houston on "Fraternity Among Dentists" were given.

A portion of the constitution and code of ethics of the society follows:

Article 1, Section 1.—The dentist should ever be ready to respond to the wants of his patrons and should fully recognize the obligations involved in the discharge of his duties toward them. His manner should be firm, yet kind and sympathizing, so as to gain the respect and confidence of his patient; and even the simplest cases committed to his care should receive that attention which is due to operations performed on living sensitive tissue.

The dentist should be temperate in all things, keeping both mind and body in the best possible health, that his patients may have the benefit of that clearness of judgment and skill which is their right.

Art. 2, Secs. 1 and 2.—A member of the profession is bound to maintain its honor, and to labor earnestly to extend its sphere of usefulness. He should avoid everything in language and conduct calculated to dishonor his profession and should ever manifest a due respect to his brethren. The young should show special respect to their seniors; the aged special encouragement to their juniors.

When consulted by the patient of another practitioner, the dentists should guard against inquiries or hints disparaging to the family

dentist or calculated to weaken the patient's confidence in him; and if the interests of the patient will not be endangered thereby, the case should be temporarily treated, and referred back to the family dentist.

Dental surgery is a specialty in medical science. Physicians and dentists should both bear this in mind. The dentist is professionally limited to diseases of the dental organs and their adjacent parts. With these he should be more familiar than the general practitioner is expected to be; and while he recognizes the broader knowledge of the physician in regard to diseases of the general system, the latter is equally under obligations to respect his higher attainments in his specialty.

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#### CLASS OF 1854.

An unique honor is that which was visited upon five prominent members of the dental profession in Philadelphia Feb. 27. Delegates from dental associations all over the United States gathered at the Hotel Belvidere, at a banquet given to Dr. James Truman, Dr. Louis Jack, Dr. Sturer Howe, Dr. C. N. Pierce, all of Philadelphia, and Dr. Ewise Haines of Westchester, Pa.

These men, beloved and honored in their profession everywhere, graduated from the Philadelphia Dental College just fifty years ago, and have remained in active practice ever since, a record almost without a parallel in other callings. Months ago the leading dentists of Philadelphia, aware of the approaching half century completion of the faithful work of their colleagues, communicated with sister associations in other parts of the country, with the result most gratifying to all concerned, of a spontaneous expression of a determination to banquet the five practitioners mentioned. Covers were laid for more than 150 members and the evening was given over to reminiscences of early days of these men and in glowing eulogy of their skill and length of service.

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#### THE C. V. BLACK DENTAL CLUB OF ST. PAUL.

Dr. C. V. Black, dean of the Northwestern University Dental College, received a warm tribute from the members of the society of dentists named in his honor at the meeting held at St. Paul Feb. 20.

Dr. Black's address was on the subject of "Extension for Preven-

tion." He had for years believed, preached and practiced the theory that the dentist himself should decide to what extent he should proceed in caring for the teeth, but contended that in the aggregate more harm is done by stopping too soon than in going too far.

The ovation that followed the completion of the address was to some extent repeated when Dr. Black arose at the end of the general discussion to speak in reply to the discussion aroused by his paper. The discussion of the paper was led by Dr. Clack of Clear Lake, Iowa, who was decided in his opinion that the theory of Dr. Black was correct and submitted samples of work to prove such to be the case.

Dr. J. V. Conzett read an essay on the general treatment of the teeth, from the standpoint of a dentist, and was warmly received. The discussion of his paper was led by Dr. C. N. Johnson of Chicago.

Just previous to adjournment it was decided to hold another clinic in St. Paul a year from this time, and Dr. E. K. Wedelstaedt of St. Paul was invited to take charge of the arrangements. Dr. Wedelstaedt was in charge of the arrangements at the present session of the club, and was warmly praised for the manner in which he had carried out the details of the session.

Dr. Truman W. Brophy, president of the Chicago Dental College, was in attendance.

Dr. E. K. Wedelstaedt of St. Paul opened the afternoon session with a paper on "Failures of Dental Operations."

Dr. W. D. James of Tracy, Minn., on the necessity of using greater care in making artificial dentures.

Dr. C. N. Johnson of Chicago gave an interesting essay on some of the causes that lead to the failure of fillings.

Dr. J. V. Conzett of Dubuque, Iowa, opened the discussion on the essay. Dr. A. M. Lewis, Austin, Minn., closed the afternoon session with an essay on "Our Development."

In the evening an informal reception in honor of Dr. Black and Dr. Johnson was given at the residence of Dr. E. K. Wedelstaedt.

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### **POTASSIUM PERCARBONATE.\***

(W. S. Hosterd.)

It is not the intention at this time to present a paper before the society on the subject mentioned, but, in fact, only a brief report of a drug that is as yet new in the market.

\* Written for the Iowa State Dental Society Meeting, held at Sioux City, May, 1903.

Through the kindness of Professor L. W. Andrews, professor of chemistry in the university, I am indebted for the formula, a sample of the product with some of its properties. The practical test of its usefulness is left to us to establish. That you may further my investigations as to its value is the plea for presenting the drug to your attention.

"Potassium percarbonate was discovered by Von Hansen. It is produced by the action of an electrical current on a concentrated solution of potassium carbonate at low temperatures, and has the formula  $K_2C_2O_6$ . It dissolves in cold water, giving off carbon dioxide. The solution is mildly alkaline, oxidizing and strongly antiseptic, without being irritating to the tissues. It closely resembles, in fact, a mixture of hydrogen peroxide with potassium bicarbonate. The percarbonate is hygroscopic and should be carefully protected from moisture, since, if wet, it quickly decomposes, while it may be kept dry for a long time without change. The action of potassium percarbonate on water may be represented in part by the equation,  $K_2C_2O_6 + 2H_2O = 2KHCO_3 + H_2O_2$ ."

The first test made was to place a crystal of this drug in different cavities of decay and apply a drop of water; after reaction ceased the cavity was dried. Litmus paper test showed alkaline condition.

Cavities were after above treatment sealed with temporary stopping, also cement, records made as to time and character of decay. These cavities will be opened and tests made as to the antiseptic properties of the drug.

Test 2—Teeth badly discolored were subjected to the application of the drug for bleaching purposes. Crystals of the drug were placed in cavity, water added. Excellent results were obtained. See samples herewith. Two teeth extracted from same mouth, both badly discolored. The tooth that is bleached stood in 50 per cent solution for six hours.

Test 3—Putrescent pulp fictulous opening present. After preliminary treatment with drug in working out canal a 50 per cent solution was injected through tooth and fistula. This treatment was adopted in several cases and marked benefit resulted.

Test 4—Acid condition of saliva with several teeth having cervical cavities. Used 3 per cent solution of drug as mouth wash each night for a week. Litmus paper test showed alkalinity next morning.

Deductions as to the probable usefulness of the drug: 1st, as an

alkaline antiseptic in sterilizing cavities; 2nd, as an alkaline mouth wash, 3 per cent; 3rd, as a bleaching agent, not, however, as powerful as pyrozone or concentrated solution of dioxogen; 4th, as a non-caustic sterilizing agent in putrescent cases.

The writer has only had this drug for a short time and feels considerable embarrassment in presenting this subject before you without first obtaining more data of scientific results. There is generally a good ulterior reason for presenting subjects before a society, and in this case the object is to solicit your personal investigations of not only this medicine, but others that appear from time to time that are advocated for therapeutic aid in the pathological conditions we are called upon to meet in our professional work.

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#### **WHAT A LEADING WESTERN DENTIST THINKS OF THE AMERICAN.**

**The American Dental Journal is great. I enjoy it better than any other journal that reaches me.**

**W. H. DE FORD, D. D. S.,  
Jefferson, Iowa.**





A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### DR. HENRY GILL.

Dr. Henry C. Gill, one of the veteran dentists of Rockford, fell dead in his office April 4.

He had just returned from dinner and had gone into the room where extracting is done, on the south side of the hall, opposite the office. A moment later a noise was heard there and his companions hurried across the hall just in time to see him stagger and fall to the floor. When his brother reached his side he was barely alive and after a breath or two life had passed.

He had been in frail health for many months and he and his family knew that his hold on life was slight and were in a measure prepared for his passing. Nevertheless, his sudden end was a shock to the family, as they had no idea that he would pass away so soon. His only son, Harry Gill, had been summoned home on account of his father's illness and reached here April 1. He was in the Masonic rooms on the fifth floor at the time his father died and was overcome at the tidings.

Dr. Gill was born in Hartland, Vt., and would have been 60 years of age in June. He came to this city in 1875 and began the practice of dentistry in partnership with Dr. Noyes E. Babcock. Three years later his brother, Dr. Frank C. Gill, bought out Dr. Babcock's interest and the latter partnership had continued since. As is his brother, Dr. Gill was a man of genial ways and companionable habits. He had friends in plenty, made both socially and in a professional way. He had been in frail health, heart trouble and Bright's disease affecting him seriously. In his profession he stood high and through all the years of his professional life he commanded the respect of his compeers and his patients.

He is survived by his wife, who was Miss Ida C. Bunker, to whom he was married September 14, 1871, and one son, Harry Gill. Another son, Carl Gill, died last fall. The loss of this son had a bad effect on the father and his health had failed since.

Dr. Frank Gill, his brother, has been seriously ill the past winter and has just recovered. The shock of the death was borne bravely and with less ill effect than would be expected.

The two brothers had been almost inseparable for years and many people did not know them apart, their personal appearance being quite similar.

The passing of Dr. Gill removes a good man. He was a model man in every way. In his family he was kindly and interested in everything that interested his loved ones. His sons were his companions and he was ever sunny and kind. In his intercourse with the public he was even tempered and upright. He was a member of the Church of the Christian Union in which he took much interest.

He was a member of the Odontological Society of Rockford and the Northern Illinois Dental Society.

The following was presented as a memorial to Dr. Henry Gill, at the April meeting of the Odontological Society of Rockford:

A soldier has just left us,  
A comrade has gone to his rest,  
But he left with us a jewel,  
An ornament to any crest.  
The jewel is a remembrance  
Of a hearty welcome given;  
A hand clasp strong, and a boost along,  
Toward that for which we'd striven.  
Any worthy man was welcome  
To enter in his strife  
For competitive perfection,  
And he'd help him with his life.  
To his patient always kindly;  
To his brothers always fair;  
With no word of criticism  
But a word of love to spare.  
A regret for his departure,  
A long, lingering regret;  
As he helped us with his presence,  
So his memory will not let  
Us drift back to a selfish striving,  
To a discord most unkind;  
But we'll stand together, brothers,  
All united heart and mind.

M. R. HARNED, D. D. S.

**DR. OTIS AVERY.**

Dr. Otis Avery, 96 years old, the oldest practicing dentist in the world, died on Monday night at Honesdale, Pa., where for more than half a century he had practiced his profession. The funeral services were held at Honesdale.

Dr. Avery leaves, besides his second wife, three step-children, Mortimer C. Addoms, New York City; Mrs. Geo. S. Purdy, and Frederick Addoms of Denver.

Probably the first dental certificate ever issued was given to Dr. Avery on Dec. 6, 1833, by Dr. Ambler of New York City. Six years later, in 1839, the first dental college in the world was established in Baltimore, Md.

Dr. Avery was born in Bridgewater, Oneida county, N. Y., on Aug. 19, 1808. His paternal grandfather was born in Connecticut and served in the French and Indian wars. His father, John, was a silversmith and watchmaker. In 1827 Dr. Avery settled in Bethany, Pa., and established a watch-repairing shop. He later removed to New Berlin, N. Y., where he carried on the same trade. It was then that he decided to become a dentist. He went to New York city, where for two years he received theoretical and practical instruction from Dr. Ambler. After receiving his certificate of qualification, the first three or four years of his practice extended from Honesdale, Pa., to Utica, N. Y., there being only one dentist in all that region. He then settled at Binghamton. His patients were all seen by appointment.

In 1839 Dr. Avery went to Bethany, Pa., where he practiced his profession in the summer time. In the winter he practiced at Columbia, S. C. In 1850 he permanently settled at Honesdale, where he remained until the time of his death.

When Dr. Avery began the practice of dentistry artificial teeth were almost unknown. George Washington and Aaron Burr had sets. Artificial teeth were carved out of solid ivory or were human teeth attached to a gold plate. Turnkeys were used to extract teeth.

Dr. Avery also interested himself largely in mechanical research and invention. In 1850 he invented a sewing machine and sold the patent to a company. The machine is still in use. As agent of the company he visited Europe and sold his patent to a company in England. He sold a machine to Napoleon III in France. Besides making all the dental instruments he used, he invented many

new ones, including a self-cleansing cuspidor which has since been improved upon and patented. In the early '60's he devised a type-setting machine, the main principles of which are similar to those embodied in the machines of to-day.

Until he died on Monday, Dr. Avery was the last living man who rode in the first locomotive in America on its initial trip in 1829. The Delaware & Hudson railroad imported two locomotives of the George Stephenson type from England, to take the place of the mules on their road between Honesdale and Carbondale. The "Stourbridge Lion," the first of the locomotives to turn wheels in the United States arrived at Honesdale on Aug. 7, 1829. The next day it took its initial trip with Horatio Allen, who died on Dec. 31, 1899, as engineer. The trip was a short one—less than a mile—but Dr. Avery, as a boy, hung on the bumpers. The locomotive never made another trip, as it was too heavy for the strap iron rails. What is left of the "Stourbridge Lion" is now in the Smithsonian Institution at Washington.

Dr. Avery continued active practice alone until a few years ago, when he took Dr. Ernest T. Brown as an assistant. When Dr. Brown opened an office of his own two years ago, Dr. Avery resumed his active practice, which he continued until his recent illness.

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### DR. W. J. MAERCKLEIN.

Dr. William J. Maercklein, who had made his home in Milwaukee for twenty-four years, died April 6, age 60 years. He is survived by a widow and eight children, seven sons and one daughter.

Dr. Maercklein was born in Germany and came to this country in 1853, settling in Ozaukee county, about thirty miles north of Milwaukee, where he spent his youth and young manhood. In 1881 he came to Milwaukee and has lived there since. He practiced dentistry for many years, but in recent years has been ill. His death was not unexpected, the cause being nervous prostration, from which he suffered about four years.

Dr. Maercklein had seven sons, of whom four are practicing medicine in North Dakota—F. W., Adolph G., I. R. and E. H. Maercklein; Walter H., who is employed by the Pabst Brewing Company; Edward and William, and one daughter, Edna Maercklein. He is survived by three brothers, Robert, B. G. and R. E. Maercklein, all of whom are practicing dentists.



## IN MEMORIAM

A meeting of the dentists of Burlington was held in Dr. Cochran's office March 17 in consideration of the death of Dr. Wilson and passed the following preamble and resolutions:

"Whereas, The dental profession of Burlington in common with all citizens mourn the loss in the death of Dr. I. P. Wilson, a citizen who was beyond reproach and a man devoted to his profession, always ready and willing to give his time and ability to the advancement of science, a close student and a man whose daily application to his work in hand was conscientious, true and skillful. It is with pride we, the dentists of Burlington, can look upon his life as a life well spent, and can truly say regarding his efforts, "Well done, thy reward shall be peace."

"Therefore, be it resolved, That in Dr. Wilson's death the dental profession has sustained an irreparable loss and the city of Burlington an honest, conscientious and perfectly trustworthy practitioner. And while our hearts are bowed down with sorrow, yet it will be our pleasure to remember his many virtues and qualifications as a teacher and practitioner.

"Resolved, That we, his fellow collaborators, do hereby extend to the sorrowing widow and members of our deceased brother's family our profound sympathy and condolence.

"Resolved, That the secretary of this meeting be instructed to mail a copy of these proceedings to his family.

"R. L. COCHRAN, President.

"H. L. MADISON, Secretary."

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### DR. J. C. EMMERLING.

Dr. Joseph C. Emmerling, a Milwaukee dentist, died suddenly March 14 of apoplexy. His death was sudden, as he had not been complaining of late, though he suffered with heart trouble since 1900. He was about 46 years of age, and had been in Milwaukee since 1876. He was prominent in German circles and took an active part in many German organizations, and for a number of years was president of the Milwaukee Musical Society, of which he was an active member. He is survived by his wife, three brothers and one sister.

**DR. JOSEPH F. BAIRD.**

Of typhoid fever, April 5, after a brief illness. Dr. Jos. F. Baird was born in 1867, near Greenville, Pa.; was graduated from the Chicago Dental College, class of 1891. He moved to Joliet soon after and was employed as an assistant to Dr. E. H. Stewart, and later with Dr. Bronson. After which he opened an office and practiced for several years. Dr. Baird was a prominent Mason, a member of the Union Club, and was also a member of the Presbyterian Church.

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**DR. SAMUEL E. EMERY.**

Dr. Samuel E. Emery of West Newbury, Mass., died Feb. 28 on the steamer Caracas, en route from Porto Rico to New York. Dr. Emery left early in February for a month's trip to Porto Rico, was taken ill and his family and the family physician left immediately for Porto Rico. On the return, Dr. Emery failed rapidly until death ensued.

The deceased was born in Portland, Ct., in 1852, but had resided at Newburyport most of his life.

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**DR. GEORGE P. HOLMES.**

Dr. George P. Holmes, aged 72 years, for many years a well-known dentist of St. Louis, died Jan. 28, at his residence, 944 Laurel street, of an abscess in his right ear. He had been afflicted in this manner for about three weeks previous to his death. He is survived by a widow and one daughter. Dr. Holmes is survived by several brothers and sisters.

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**DR. J. R. STEWART.**

Dr. J. R. Stewart, aged 29 years, of Coldwater, Mich., a prominent young man and a dentist by profession, died Jan. 31 at the home of his brother, Dr. F. W. Stewart, of pneumonia.

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**DR. E. P. NOBLE.**

Dr. E. P. Noble, a prominent dentist of Belle Plaine, Iowa, died at Albuquerque, New Mexico, where he had gone for the benefit of his health.

**DR. EMANUEL E. DE GRAFF.**

Dr. Emanuel E. De Graff, 57 years old, a dentist, who for fourteen years had been located in Fourteenth street, New York, died March 26 of pneumonia. He had an office and resided at No. 9 West Fourteenth street, and is survived by a widow, a son and daughter. Dr. De Graff was born in Amsterdam, N. Y., and previous to his locating in that city practiced in Syracuse.

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**DR. CHARLES SOVEREIGN.**

Dr. Charles Sovereign, who as one of the firm of Sovereign Brothers, dentists, had offices continuously in the Methodist Church block for thirty years, died Wednesday at his residence, 5247 Indiana avenue, Chicago, of gastric ulcer. Dr. Sovereign was 54 years of age.

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**DR. C. L. HART.**

Dr. C. L. Hart, a dentist at Osborne, Kas., was killed March 11. He was crushed beneath a heavily loaded wagon, which overturned as he was attempting to get onto the wagon while it was in motion. He was 35 years old.

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**DR. E. M. TAYLOR.**

Dr. E. M. Taylor, a young dental student, whose home was at 199 Whitehall street, Atlanta, Ga., died March 22 at the Grady hospital after a short illness. He leaves a wife.

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**DR. BENONI S. BROWN.**

Dr. Benoni S. Brown was found dead on his couch at his Shell Boat cottage, near Boston, March 31, where he lived alone. Dr. Brown was aged 84 years, and come from Buffalo. He was a widower and leaves a son.

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## DENTAL PATENTS

Reported especially for this Journal by H. B. Willson & Co., Patent Attorneys, 8th and F Streets N. W., Washington, D. C.

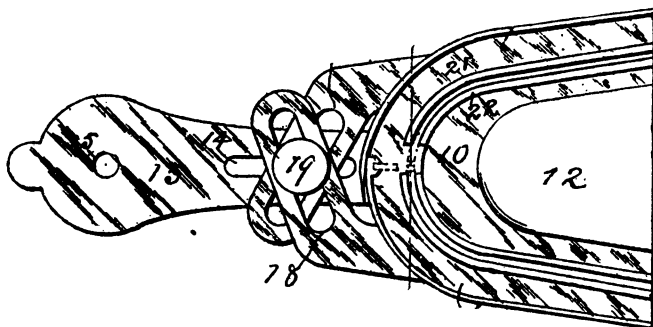
A complete copy of any of these patents will be forwarded to any person by Messrs. Willson & Co., on receipt of ten cents. Persons ordering copies, must give number of patent.



755,425. Automatic Dental Plugger. Alexander W. Wimmer, Chicago, Ill.

Filed July 11, 1903. Serial No. 165,080. (No model.)

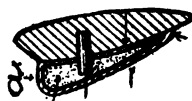
Claim.—In a dental automatic plugger, a barrel, a hammer mounted therein, a spindle slidably mounted in said barrel and arranged to project therefrom, a pawl carried by the said spindle and arranged to coact with the hammer, one of said coacting elements being provided with an inclined rack having a series of step-like teeth, and the other of said elements being provided with a coacting tooth, and means operated by the movement of the barrel relative to the spindle, for moving the pawl laterally during the said movement of the barrel, to permit the tooth of one element to successively pass the rack-teeth of the coacting element to cause the hammer to be successively lifted and released by the pawl.



753,679. Adjustable Dental Impression-cup. John C. Davis, Reinbeck, Iowa.  
Filed April 6, 1903. Serial No. 151,417. (No model.)



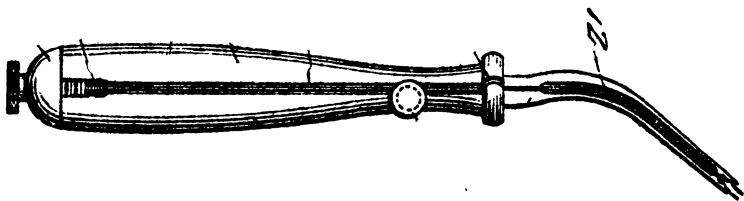
Claim.—In an adjustable dental impression-cup a base-plate having a dome at one end and a handle at the other end and a longitudinal slot in the handle and two flanged plates, each having a bridle at its rear end portion adapted to overlie the slot in the handle of the base-plate, and means for clamping them together, arranged and combined to operate in the manner set forth for the purposes stated.



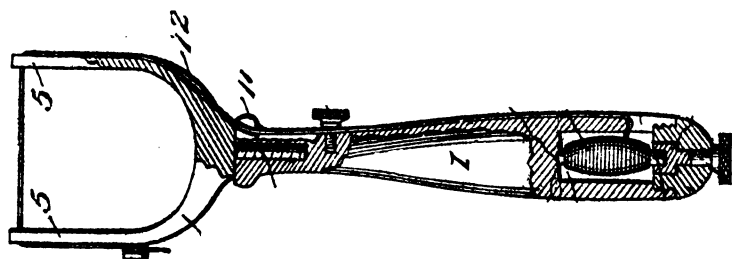
753,529. Dental Bridge. Frederick Teague, Oakland, Cal. Filed March 18, 1901. Serial No. 51,643. (No model.)

Claim.—1. A hollow backing to receive the cement and comprising in a single integral element back and front walls and an occluding surface joining said back and front walls, said front wall being perforated to receive the pins from the porcelain front.

2. In dental bridgework the combination with an artificial tooth-front of a hollow backing inclosing a cavity individual to the tooth-front, and to the front wall of which the tooth-front is secured, a back wall integral with the front wall and a grinding surface integral therewith joining the front and back walls, said grinding surface being supported behind the tooth-front and separately of the occluding surface thereof.



754,841. Tooth Cleaning Implement. George C. Bessonnet, Channing, Tex. Filed Nov. 28, 1903. Serial No. 183,064. (No model.)



Claim.—In an implement of the class set forth, the combination of a handle having a forked head at one end and a longitudinally disposed chamber in the opposite end, a removable cap to close the said chamber, said cap carrying a rotatable plug having an angular socket in its inner end exposed to the said chamber, and a milled head at its rear end adjacent to the outer surface of the cap, and a bobbin having a strand thereon removably disposed in longitudinal position in the chamber and having its rear end shaped similarly to and fitted in the angular socket at the inner end of the plug, the opposite end of the bobbin rotably engaging the front wall of the chamber, the strand carried by the bobbin being drawn over the forked head.



## PERSONAL AND GENERAL

**Fire.**—Haaf & Culver, dentists at San Pedro, Cal., had their offices completely destroyed by fire March 11.

**Fire.**—Dr. Cashman of Racine, Wis., suffered considerable loss by fire in his office April 7.

**Robbed.**—Dr. J. C. Ferrell, a Chicago dentist, was held up and robbed March 30, losing \$300 in money and valuables.

**Accidental Death.**—Dr. D. A. Nash accidentally shot and killed himself March 26 at Biloxi, Miss.

**Married.**—Dr. Victor H. Rimerman of Lincoln, Ill., was united in marriage April 6 to Miss Estel Daviess of Pekin, Ill.

**Married.**—The wedding of Dr. S. Shirley Shattuck, a North Andover, Mass., dentist, and Miss Lillian S. Barry of Boston took place at the latter place April 1.

**Suicide.**—G. E. Fisher, a Red Oak, Iowa, dentist, committed suicide March 24 by shooting himself in the head. Temporary insanity is assigned as the cause.

**Married.**—Dr. Edwin W. Yost, a Lisbon, Ohio, dentist, and Miss Anna Louise Lodge of Lisbon, Ohio, were married March 24. Dr. Yost was formerly located in Massillon.

**Office Robbed.**—The dental offices of Dr. F. A. Peak at Hot Springs, Ark., were burglarized March 16, the burglar taking all the gold in stock. The amount was about \$75.

**Bankrupt.**—W. P. Burt, dentist, filed in the United States court April 1 a petition in voluntary bankruptcy. Burt places his liabilities at \$316.76, with no assets.

**Explosion.**—The offices of Dr. D. F. Rockey at Oak Park, Ill., were set ablaze by an explosion of gasoline March 14, but saved from total destruction by the heroic efforts of his assistant, Miss Smith-McCormick.

**Burned.**—Dr. J. H. Lowe of Waynetown, Ind., poured gasoline on a coal fire March 18 and escaped with only the loss of his clothing and some slight burns. The punishment was inadequate.

**Held Up.**—Dr. F. C. Lee, a Minneapolis dentist, was held up at Hanley Falls, Minn., March 19, and robbed of a \$400 diamond stud and a \$50 gold watch. The doctor stepped off the train to walk along the platform for exercise. Near the rear of the train the platform was dark, and one man held a revolver to the doctor's head while the other took his stud and watch.

**New Member of Dental Board.**— Governor Yates announced March 15 the appointment of Dr. C. R. Taylor of Streator as a member of the state board of dental examiners to succeed Dr. Clark R. Rowley of Chicago. Dr. Rowley tendered his resignation to Governor Yates last summer and the office has since been vacant.

**Object to Tax.**— Representatives of the Virginia Tidewater Dental Association requested the finance committee of the city council of March 16 to reduce the present license tax against dental surgeons. They received very little encouragement from the committee, and do not appear hopeful of the result.

The members of the association claim they are taxed higher than any other professional body, and think the council is discriminating against them. They claim to want the same tax that is imposed on other like professions, and feel that they are justified in their demands. They are now required to pay a tax of \$35 per annum to the city, \$25 per annum to the state, and in addition to this 1 per cent of the gross receipts for the year.

**Fourth Annual Gathering of Tau Chapter, Xi Psi Phi.**—Tau chapter of the Xi Psi Phi fraternity of the dental department of Washington University held its fourth annual banquet at the St. Nicholas Hotel, St. Louis, Mo., March 13.

The address of welcome was made by H. F. Hagemann. The entire dental faculty was present, and each responded to toasts proposed by F. B. Lynott, who acted as toastmaster. The following were present:

Drs. J. H. Kennerly, Walter Bartlett, De Courcy Lindsley, H. Prinz, B. E. Lischer, Willard Bartlett, O. W. Bedell, B. N. Pippin, R. J. Terry, W. H. Warren, Simpson, Thomas G. Donnell, Homer C. Dodge and E. W. Terhellen, Messrs. A. Bailey, H. R. Faherty, H. F. Hagemann, F. Lynott, J. E. Northcott, H. S. Rehm, R. M. Robinson, J. G. Schwarz, T. J. Selby, D. A. Sloan, A. H. Sohm, J. W. Smith, C. P. Stuttle, W. H. Blanck, F. W. Horstmann, G. Johns, E. L. Parcell, L. F. Roudebush, E. E. Sharp, C. A. Tetley, Thomas T. Umbarger, R. T. Villars, W. J. Burcham and J. D. Hayward.

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### HOLDS DENTIST RESPONSIBLE.

Aviano P. Serrano recently filed suit against Morris D. Greengard, doing business as the New York Dental Company, for \$4,500 damages. He alleges that he contracted with the defendant to do certain dental work which was to cost \$50 and be completed within ten days in order that he might return to Mexico, where he was employed at a salary of \$200 a month. He claims that while working on his teeth the dentist permitted a revolving instrument to slip, cutting the plaintiff's mouth, from the effects of which his tongue and throat became swollen and resulted in blood poisoning. He affirms that he was compelled to employ medical attention for several weeks and that he has since lost his position.

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### DENTIST COMMITS SUICIDE.

Holding a revolver against his head, Dr. William D. Saunders of Ann Arbor, who graduated from the dental department, University of Michigan, in 1887, fired a bullet through his brain January 27 and died soon afterward. The suicide is supposed to have been due to an unbalanced mind.

**Open Dispensary.**—The Odontological Society of Rockford, Ill., has taken up the burden of an important charity and has decided to establish a free dispensary to care for the teeth of those who are unable to pay. No dispensary, either medical or dental, has ever been held in Rockford, and the members of the profession are making an innovation and one which should be productive of great good.

The decision to establish a dispensary was taken at the last meeting of the society and the members started at the work in energetic fashion. Already the equipment has been purchased and it will be located at St. Anthony's hospital, which institution has generously donated a room for the purpose. The dentists will furnish all the supplies and the material used in addition to giving their time, so that the burden they have assumed is no slight one. Some members of the society will be at the hospital certain hours of every day in the week. The men will take turns in attending to this duty, and as there are fifteen of them, each will have to go to the hospital approximately twice each month.

The dispensary is for poor people who are unable to pay the regular prices charged at the offices. To be sure, no elaborate work will be done, the intention being to take steps for the preservation of teeth. Decaying teeth, especially those of children, will be treated to arrest decay and preserve them. This is important in many children. Young people who have not yet arrived at the age when they can earn money will not have to lose their teeth because of poverty. The efforts of the dentists will not be confined to children, but the teeth of older people will be filled and treated in whatever way may be necessary.

People wishing to take advantage of the dispensary will have to secure credentials from the Ladies' Union Aid society or some similar organization which is in position to know if they are deserving.

### **TEETH STOLEN FROM MOUTH.**

The first prize for unique thievery goes to Henry Brubaker.

Before leaving for Stanton, Neb., in company with Sheriff King of that town, Brubaker, who had been tarrying for a few days in the county jail, celebrated his departure by stealing a set of false teeth from the mouth of one of the prisoners. The theft was not discovered until after Brubaker had left town.

Old John Shea, who had spent nearly the entire winter in jail, is the victim of Brubaker's unique stunt, and the nature of his mumbling plea of guilty in the police court recently was afterward explained by him: to be due to the loss of his teeth. Brubaker is alleged to have slipped the artificial molars from the old man's mouth while the latter was fast asleep. Shea was very hungry yesterday morning, but could not eat.

### **\$110 FOR BREAKING TOOTH.**

A verdict for \$110 in favor of Mrs. Antoinette Hof of New York city against the Guarantee Dental Co., who have various branches in that city, was obtained by her attorney recently.

Mrs. Hof on Dec. 12 last went into the company's branch at 149th street

and Third avenue to have a tooth extracted. She said she wanted to have it extracted without pain, according to their advertisement. A very young dentist attempted to extract the tooth and in doing so broke the same and lacerated the gum, it was claimed. A jury in the municipal court, after deliberation, returned the above verdict against the company.

The point made was that the company was merely a commercial enterprise, employing young dentists at low salaries. The case was a test one and was fought very bitterly.

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### AMERICAN DENTISTS IN GERMANY.

The highest court of appeal in the German empire has been busy with the case of three American dentists resident in Dresden, who were indicted for using the title "Dr. Dent, Surg." or "Dr. Chir. Dent." after their names on their doorplates.

The German dentists in Dresden contended that the appearance of the title "Dr." conveyed a false impression.

Dr. Hendrick and his two American colleagues proved that they got their degree from a school of American dental surgery.

But the court held that the Americans are not entitled to the use of the title "Doctor," that their use of it would be deceptive, and that if they persist in using it they must be punished.

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An imperial Supreme Court at Liepsic gave a peculiar decision lately. The case went up from Dresden, and involved the right of an American dentist to call himself doctor. The court said no American dentist could do this lawfully unless he had a diploma from the Michigan State University at Ann Arbor.

In giving grounds for the decision the court said that other American degrees in dentistry are "simply business merchandise." Only a degree from a university under state superintendence can be recognized. This seems to imply that the Michigan University is the only one conferring such degrees known to the court as under state superintendence.

But it seems rather absurd to decide as a matter of law that no man is a dentist unless he has a diploma from one institution. That there are fraudulent degrees and diploma factories in the United States is true, and Germany is not to blame for looking behind the face of a diploma. But when the case gets into court it would seem feasible and proper to treat the status of the institution as a question of fact to be decided upon proof of the requirements for qualification. There are other institutions in the United States, doubtless many of them, whose requirements for graduation are quite sufficient to warrant their graduates in using the degree of doctor of dentistry, and practicing the profession.

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### FIRST FREE DENTAL DISPENSARY.

The free dental dispensary in connection with the New Haven (Conn.) Medical Dispensary, as established by Yale University, is now an assured thing. This addition to the charitable work of the city will be made through

the New Haven Dental Association, and it will be one of the first of its kind in this country. That it can be successfully inaugurated is not alone due to the members of the association, but to the assistance of one of the philanthropic residents of the city, who has generously offered to settle all the bills for the implements to be used in the dispensary. This offer will represent an outlay of about \$2,000, but the donor wishes his name withheld from the public.

Acting under this offer, the representatives of the Dental Association have ordered the furnishings and equipment for the dispensary. These articles are to be of the most up-to-date pattern, and the dispensary will consist of the finest office in the city. All of the main office furnishings will be of porcelain and walls for a short distance will be tiled.

In addition to the instruments for the work, there will be a number of utensils for the sterilizing of instruments. These will include porcelain tubs in which the instruments may be washed and scientifically treated.

In order to care for all worthy poor people who may require treatment the members of the association have volunteered their services. Each dentist in the association will give his services at the dispensary for one-half day per month. With the number of members in the association this may easily be cut down to fewer hours. Under the arrangements made by the association the patients will receive, free of charge, the same treatment they would receive at the private offices of the dentists.

The establishment of this dispensary is the result of numerous attempts on the part of the regular practicing physicians at the dispensary to care for people who are suffering from troubles with the teeth. It is hoped to have the dispensary in operation in about one month.

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#### DALLAS DENTAL SOCIETY.

The regular monthly meeting of the Dallas Dental Society was held in the office of Dr. G. W. Staples. Besides Dr. W. R. Stokes, vice president, and Dr. C. H. Steele, secretary and treasurer, there were present Drs. Staples, Jones, Kearby, Cooper and Gaston. New members admitted are Drs. Kearby, Cooper, Gaston and Pelkey. As a gift from the A. P. Carey Company the association was presented with a well-bound record book with the names of officers and charter members printed in gold on the cover. A vote of thanks was extended the donor.

Dr. Staples, essayist of the meeting, read a paper on "Some Recent Cases of Replantation of Teeth." He described instances in which it was necessary to remove and replace teeth in the treatment of persistent abscesses, variously caused. A lively discussion of the theme followed, and all present took part in it.

Dr. J. G. Fife was appointed essayist for the meeting on March 12 and will place his office at the disposal of the gathering at that time.

It is expected that a delegation will attend the state convention of the association at Corsicana in May.

**ONE CENT FOR SEVEN TEETH.**

One cent was the value placed on seven teeth by Justice Martin February 4. They were the property of I. Silverman, who exhibited them in court to prove John Walter knocked them out in a scuffle in the latter's saloon Tuesday night. The value Silverman placed on his teeth was \$185. He sued to recover this amount in damages.

Walter has a saloon in Armitage avenue and at one time had business dealings with Silverman. When these terminated the men were not very friendly to each other, but as Silverman wanted to recover some property he had left in the building he entered the saloon Tuesday night to get it.

"Get out of here," commanded Walter, who is a muscular German.

"I will not," said Silverman.

Thereupon, it is charged, Walter struck Silverman a blow that sent him reeling into the street and dislocated seven of his teeth.

"Some of the teeth were knocked clear out of my mouth and scattered on the sidewalk," Silverman said. "I hunted until I found them and then went home. I consider they are worth \$185."

Silverman opened his mouth and showed where the teeth had been.

"I just gave him a push to get him out of the saloon," said Walter, who could not deny the plaintiff had lost some teeth.

The seven teeth, marked exhibit A, were examined by the court.

"I find," said Justice Martin, "that these were very poor teeth and should have been pulled anyhow. The defendant has saved you a dentist's bill, so there is not much coming to you. I award you damages in the sum of 1 cent."









EDGAR DENMAN SWAIN.



## PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

### PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.

(Professor of Prosthetic Dentistry and Technics, School of Dentistry,  
University of Illinois.)

#### CHAPTER XIV.

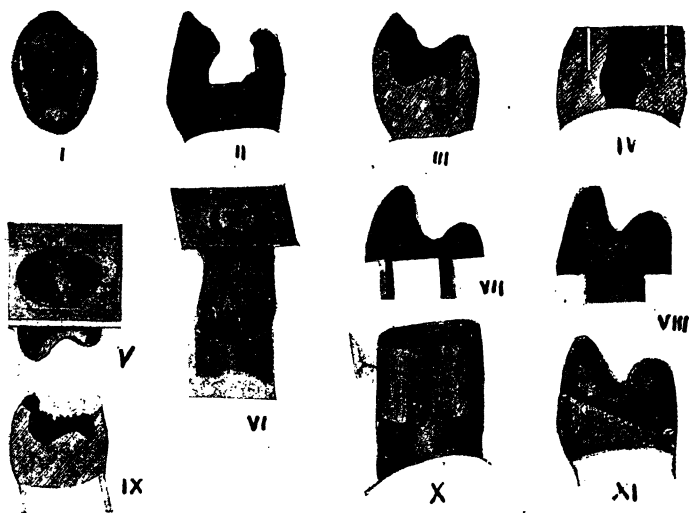
Few dental operations which we are called upon to perform demand a keener judgment than cases where the occlusal surfaces of teeth are badly decayed, and present conditions somewhat unfavorable for a large gold filling, and at the same time suggest the possibility of a crown. To be able to discern when to apply a gold filling or when to resort to one of the various methods of crown-work is certainly a knowledge which has been ripened by the benign influence of both study and experience. These classes of operations thoroughly awaken us to a sense of great responsibility, since the endurance of the dental organs entirely depends on our recognition of the proper agency to arrest decay, and reproduce the elements which enter into process of mastication. In the event of the failure to apply the correct remedy we have in a degree violated the laws of nature and are responsible for the mal-sequence. To crown or not to crown is the question. The correct solution of this inquisition involves technicalities, circumstances and relations as perplexing as any problem which may possibly present itself to a truly conscientious dentist. It is far from being as simple as it appears, and its complexity is more and more revealed as we study the teeth in their co-relation to the human body. To properly prognosticate the ultimatum of either the filling or the crown would indicate that the operator so doing is in the truest sense, a doctor of dental surgery. The countless difficulties which by either application might manifest themselves would impell the operator to look well to nature for advice, and in search of the latter he must absorb from every available source which will tend to broaden his knowledge of dentistry as an art and a science. He must call to his aid anatomy, chemistry,

therapeutics, physiology, pathology, surgery, mechanics, sculpture, bacteriology, histology and other kindred sciences if he hopes to be master of the situation. I repeat that these cases will call into play the latent learning of the operator and those who have attained any proficiency in this particular direction must of necessity have labored faithfully to acquaint themselves with these sciences which underlie its performance—and you will agree with me when I say that few indeed are sufficiently familiar with dentistry to promise decisive results. I for one take this opportunity of confessing that my meager and limited knowledge of the true science of our calling will not permit me to lend extensive advice on this most intricate query; and those who can must be well informed relative to the various liabilities—mechanical and pathological, to which a tooth in its functional performance is subject; and further they must be intimately acquainted with the anatomical and histological relations of every component part of the tooth and the soft tissues which surround it.

Who can predict which of these methods, in the case cited, would yield the most favorable result? Both operations are liable to serious consequences, of which I will directly speak. If I were to pronounce my opinion without reservation, it would be that the filling held forth the greater promise, and yet I have every reason to believe that a properly constructed barrel-crown, positioned with an untiring and exacting care, might rival the perfect filling.

The conservative practitioners in the profession are ever reluctant about substituting artificial crowns when conditions demonstrate that a filling could be retained in a manner promissory of tooth preservation. I believe the better operators would prefer to preserve a badly decayed occlusal surface by means of oxyphosphate and at various intervals refill it with this composition rather than to cut down the tooth and subject it to a collar or barrel crown. If we are to do one thing it is to refrain from being over-hasty about cutting away too freely what nature intended and demands shall be retained. It would be a wise rule to follow, in nearly all departments of dentistry that natural teeth be preserved as much as possible, without liability to abridging the durability and success of the operation. There is a disposition abroad to cut off and crown teeth which are sufficiently strong to warrant some other process of restoration. Between the ultra-conservative and the radical there is a middle or common ground, upon which all can stand; that is,

when a tooth cannot be satisfactorily saved by filling, it does not follow that the next and only remedy is to crown it. When I employ the word crown I use it with all possible latitude, namely, meaning the exposed portion of a tooth, and when you say that you crown a tooth you infer that you have completely restored either by encapsulating or by substitution. This method of hasty crowning should be condemned since it often happens that a tooth may be in such a condition that restoration by filling is exceedingly difficult and impracticable, and yet this tooth may be saved by systems of which we will soon learn.



But you say, we cannot test both methods in the same mouth, nor on the same tooth, since differential circumstances enter into the problem, and this permits me to say that we are not compelled to adopt either the one or the other, but can rely on a process which embodies the principles of both the filling and crown, and thus arrive at a common ground which will allow the potent factors of both methods to assert themselves, and hence between the ultra-conservative and the radical we have joined the two, and are fairly certain in the event of failure that we have still permitted an opportunity which will allow us to resort to either designated methods.

What I hope to emphasize is that the prevalent use of telescope or barrel crown is a menace to good health, and should not be employed in individual cases or in bridge work, unless there is no possible avenue of escape, and its application is generally indicated. The injurious results of the collar, barrel crowns are evident to any patient who jealously cares for the hygienic condition of the mouth, and to those who concern themselves about the dental welfare of their patrons. It is indeed alarming what unpleasantnesses and morbidity come from the collar crowns, and the dentist who is unmindful relative to appliances which encroach upon the gingival margins of the gum or which in any manner grapples the cervical border of the teeth is indeed jeopardizing the health of the people he serves. And in connection with the appliances which cause these difficulties privilege me to mention that clasps-dentures, regulating appliances, partial cases and misfit bridges come well in this category. Any material or agency which obstructs cleanliness of the interdental spaces is inviting pathogenic organizations which will irritate and eventually destroy the dental surroundings, causing the loss of the tooth or bring about gingivitis and pericemental troubles, any of which would be sufficient cause for serious charges against the operator. I would not be surprised if in the immediate future some states would enter upon the statute books laws against this malpractice.

Writers long since recognized the importance of retaining the natural spaces between the teeth.

This method is found advantageous in restoring badly decayed bicuspid and molars—cases which invariably tempt the dentist to position an “all-gold” or telescope crown. It not infrequently happens that the outer surfaces, save the occlusal, are all perfect, and the proper restoration of the occlusal surface would suggest a large gold filling; but on account of both the difficulty of insertion and the tediousness of the operation, it has been the practice of too many to sacrifice the healthy remnants of the tooth by telescoping in entirety with a barrel crown. I have for years resorted to a process which yields better results than a crown and approximately rivals the permanency and practicability of the mammoth gold filling. The proper reproduction of perfectly occluding cusps on a gold filling, such as is shown in the figures, will completely tax the ingenuity and patience of any operator; while by the method here proposed the task is materially simplified, without detracting from durability or usefulness.

It should be the endeavor of every dentist to produce the desired results with the least possible strain on himself and patient. And the true observance of this rule will prove a most powerful factor in benefiting the dentist and alleviating the suffering public. Too often operators in order to attain certain effects, perform the operation by a method involving more nerve-force than would be required by possibly a simpler or more direct process. It is not always imperative to employ the method which consumes the greatest amount of time and patience; neither does such a method indicate that success is its natural and immediate sequence; far from this do we find the experience of the past to record and permit me to refer to the days when the conscientious operators without the aid of the rubber dam imbedded large gold fillings—the work was arduous, consuming time, patience and even life, while to-day, with the assistance of the thin vulcanite our ideal is realized with ease and certainty. We all too well know that our vocation is of a character fully impregnated with trials and tribulations, which not only try our nerves, but our souls as well. And if in our intercommunications we arrive at conclusions which will assist in simplifying, without malifying the work in hand, and at the same time afford a diminution of suffering to our patrons, we will be practicing our profession in the most humanitarian manner possible.

The figures so clearly indicate the method that little further description is required. You can restore the cusp by a number of excellent methods, but it is wise to make the gold cusp large since it more accurately fits and is more likely to have definite anchorage.

After cutting off the remaining portion of the natural cusp, place a trifle of sandarach on the trimmed end and adjust a Hollinsworth cusp button, or, if you choose, put sealing wax on the trimmed end and carve the sealing wax into anatomical outlines, allowing patient to antagonize the opposing teeth; then take impression of the carved cusp (in sealing wax) and proceed to make a gold occlusal cusp from the sealing wax pattern. Then solder a piece of gold over the concave portion of the gold cusp and solder several pins or intra-dental band and cement into position.

The inlay method of accomplishing similar results will be discussed in our next paper.

(To be continued.)

**PORCELAIN CROWNS.**

(By J. M. Thompson, D. D. S.)

**CHAPTER VII.**

Having described in a general way in the foregoing chapter methods used in setting Logan crowns, a more careful consideration of the technique pertaining to this work may not be out of place before passing the subject.

In the first place, one of the most important parts of this procedure is the securing of a proper union between the crown and the platinum used, whether it be a disk or cap. One's ability to solder is to a greater or less extent, responsible for success or failure in using this particular tooth, and unless the utmost care and skill are actually put into the work, failures are common results. Soldering is at once made easy if the steps proceeding it have been carefully taken, i. e., making the closest possible joint where the post passes through the disk or cap. A perfect union with the smallest amount of solder is indicated in connection with porcelain work as in no other place. Pure gold as solder is permissible only where there is not a possibility of too much being used, as there are many porous crowns turned out wherein the excess of gold has played the mischief, all other things having been carefully done. Anyone who discredits this has simply to try and be convinced.

Several methods may be used in soldering, but in all cases the heat must reach the porcelain first, for if the post becomes hot too soon, the expansion of the metal will invariably split the crown. If pure gold is to be used, it may be fused in the furnace, sometimes without investing the work. In doing this, it is best to have the furnace running on the first button and pass the crown in, face downward, upon a fireclay slab, after having been thoroughly warmed in front of the door or by placing it on top of the muffle. This soldering does very little more than to hold the pieces together while the first baking is being placed in position, as it almost entirely disappears during the final fusing of a very high grade body.

The platinum solders now upon the market have done much to help the cause of porcelain. With their use the highest fusing materials may be built upon foundations consisting of several pieces with the assurance that the strength of the latter will remain unimpaired.



There are several excellent varieties of porcelain upon the market, but none seem to give the satisfaction that the material from which the best grades of teeth are made. To obtain this, a method suggested by Dr. C. H. Land is about the best one known. It is simply the selecting of a tooth of the same shade as the facing or crown to be used and heating it to a white heat with the blow pipe or in the furnace, and then dropping it into cold water. This shatters or cracks it in a way that makes the task of pulverizing an easy matter. A medium-sized Wedgewood mortar with a good large pestle and a little muscle will soon produce a fine powder that when fused again will be so nearly like the crown itself that the union is scarcely discernible. On account of the uniform quality of the crown or facing and the material added to it, the danger of checking is reduced to a very marked degree.

Cooling or tempering the crown is one of the most important steps in connection with the work. Careful attention in this particular is an absolute necessity in the production of long-lived results. One of the best methods is to allow the crown to remain in the furnace until the muffle is sufficiently cooled to permit of its safe removal. Another is, to lay a small pad of asbestos upon the top of the muffle or in front of the door, and when very hot take it and place the crown upon it and cover with a convenient air-tight box of some kind. The cover of the wooden box in which Just's cement is so neatly packed serves the purpose nicely.

The ideal furnace is yet to be produced, and such a one will have cooling and heating ovens arranged near the muffle. This may be a misstatement, but having seen nearly every furnace now upon the market do not recall a single make with such an arrangement. If there is, the inventor will do well to make a stir about its advantages.

In connection with this class of work, the Davis crown is also a very valuable adjunct, and in many ways has advantages that are not possessed by the Logan. With this tooth, a post of iridio-platinum may be used and will give more satisfactory results than one of pure platinum. In constructing a foundation for such a crown, the post is first fitted to the root and its proper length determined. If a cap is to be used, of course, it is put in place and the post driven through it the same as in any similar work; but if a disk of platinum is to be used to secure a perfect adjustment to the end of the root, matters are greatly facilitated by placing the disk

against the surface to be covered and pushing the post through it until it is firmly in position. The two are then taken away together and soldered, after which the thin platinum may be easily malleted into perfect contact with the root. When this has been thoroughly done an impression may be taken and the work finished at leisure. The crown is fitted to the already prepared foundation in the usual way, and then the hole in which the post is to fit is filled with porcelain, which is sufficiently moist to permit the tooth to be forced back into position. All excess material is then carefully removed, and the case gently lifted from the model and placed upon a fireclay block, which has holes for the post to rest in. It is generally best before adding the porcelain to loosen the post in the model so that when it is ready to remove it may be easily done. There is always considerable shrinkage in the first baking and before the second is added it is advisable to return it to the model, or, still better, to try it in the mouth, and then if not perfectly satisfactory, changes can be made and the case then finished as desired.

In preparing the Davis crown for such a case as already described, it is best to remove the mesial and distal walls of the base, or, in other words, grind a V-shaped space, allowing the crown to touch the model at its labial and lingual borders only. This allows the porcelain to be more easily placed, and after the first baking has been put on the little deficiencies caused by the shrinkage can be filled with the assurance that there will be no chance for bubbles or defects of any kind.

(To be continued.)



## OPERATIVE DENTISTRY.

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

### CHAPTER XIV.

#### TECHNIQUE OF OPERATIONS IN CAVITY PREPARATIONS.

The names properly indicating the several walls of a cavity in a tooth are labial, lingual, distal, mesial, gingival, occlusal and axial, sometimes termed pulpal from being the wall next to and covering the pulp. There is sometimes an incisal wall, but generally it is more properly an angle.

It is very important that enamel margins, where possible, be supported by dentine, as enamel not supported is less able to stand service and strains that may come upon it.

For esthetic reasons, it may sometimes be advisable in extending cavity margins to leave enamel that has been undermined by decay, such as the labial plate in anterior teeth, or the buccal of bicuspid, provided it is healthy and firm and well protected from undue strain; but it is generally advisable to substitute a cement of suitable shade for the disintegrated dentine. It need not necessarily be a thick layer, but after it has been introduced and is hardened it may be trimmed and shaped as we would do with the denture, and as the necessities of a retentive shape may require. Enamel, being more or less transparent, shows a metallic filling through it, but being backed with cement of a proper shade the natural color of the tooth is retained. An amalgam filling may often be introduced while the cement lining is still soft, the surplus cement being forced out. Care must be taken to clear the margins of cement, so that the amalgam may come closely in contact with enamel. The same thing, of course, holds good as regards cement which has been allowed to harden, the margins must be cleared and the metallic filling closely adapted at that point.

In extending a cavity it goes without saying that all enamel that has become defective must be cut away. Defective enamel may often hold its shape with a seeming firmness, but if the eye is not able to detect it a trained hand in chiseling and cleaving it may determine when cutting has been carried to sound tissue. Further than this the aid of a good magnifying lens should be called into use on anterior teeth or wherever it may be used. And, by the way,

the magnifying lens used to inspect cavities generally, and all along the different steps in the process of filling and finishing, would save many an operator mortifying mistakes and subsequent failures.

The extension of a cavity to safety lines is extension for prevention and is a procedure to be thoroughly considered in every cavity that calls for repair at our hands. To check the decay immediately under attention is not the whole office of a conscientious operator, but to do that which, all things considered, will be of greatest service and that will be conducive to the longevity and usefulness of the tooth or teeth. The writer believes that in many cases where an extremist would unhesitatingly cut heroically, that a better service may be done by a less extended course with a perfect realization that later, not in the near future, in a fair probability, the work may have to be done over on the extended plan. There are good reasons for either course governed by the conditions and circumstances surrounding the particular case in hand at the time, and certainly the matter should be well studied and thought over before extensive cutting into good sound tissue in a large number of cases. On the other hand, the thoughtless neglect of extension, when it should rightfully be done, accounts for many failures that should not occur. Certainly extension must be practiced to the extent of getting free access to the cavity for excavating properly and introducing afterward the filling material.

The removal of debris and decayed dentine from cavities is best done with thin and *always* sharp excavators, preference being given to the spoon-shaped (rights and lefts), until the cavity has been well cleared, when the shaping may be done to considerable extent with *always* sharp burs, and excavators being used again, as may be indicated. Instruments with blades having sharp angles are often useful and absolutely necessary, but they must be used with caution and understandingly in deep cavities, or the pulp may be unintentionally uncovered. The same may be said of burs with sharp corners, as wheels and inverted cones. The latter are, however, valuable in the forming walls at angles with the floor and otherwise, in preference to a rounded interior outline. This question of flat floors and walls and angles was discussed in a previous paper, with the conclusion, on the part of the writer, that the angle, instead of the rounded corners in a cavity, were preferable from every point of view for in considering the possible unseating

of a filling it is more easily done from rounded out floors and walls than from those designed practically at right angles (mostly) with each other. As Dr. C. N. Johnson says, in his *Principles and Practice of Filling Teeth*, it is easier to disturb a sphere than a cube, or words to that effect. But without special effort to square a cavity, so to speak, as concerns side walls and floor, we have, when decay has been removed, more of a circular form than square.

Inverted cones, when they can be carried into the cavity in the right direction, are valuable in the angular shaping of the same. It is not necessary that the enamel margins themselves should form sharp angles in the direction of outlining the cavity, the contrary, rather, being indicated; that is, enamel corners may be, and should be, left a little rounded instead of actually square, while the excavation, as it approaches the pulpal wall, should be squared, or practically so. To make these corners the writer proceeds as he would if he were going to make retaining pits, using a small inverted cone usually. The bur goes in at the gingivo-lingual, or gingivo-labial (or buccal), corner of a proximal cavity, for instance, and is drawn towards the gingival floor center, and then, re-inserted, it is drawn out along the side wall, leaving an angular pit, which may be further cut out and shaped with excavators if desired.

The gingival wall has all the qualities of a square base or floor, when it may and properly should incline a little rootwise from the enamel to the pulpal wall. A flat or square base for a filling is spoken of in contradistinction to a concavity or rounded out shape, but a floor that may be convex from labial to lingual, instead of concave, would be quite as good as a flat floor. A slight groove may sometimes be made along the gingival floor, when the width of the floor will permit. These corners and the floor properly cut facilitate the retention of the first pieces of gold, lock the foundation securely when laid and condensed clear across from labial (or buccal) to lingual. The floor of a proximal cavity should never slope or incline toward the gum, as it is apparent that an occlusal thrust would have a tendency to push out at the base on the outward incline, while the shape of the floor should be to force the filling in tighter upon occlusal thrust, instead of out.

When a proximal cavity is opened occlusally there is no other safe or satisfactory way of anchoring but by cutting a step occlusally, so that a good strong clutch may be made, as has already been designated, and then if we shape the occlusal of our filling, in finish-

ing, to avoid the thrust of an antagonizing cusp that would tip it out or have a tendency to, by making it so that it would strike an incline that would have a tendency to force it in rather, we would have, if our work has otherwise been properly done, little trouble in such fillings being dislodged.

In any such cavity that is through occlusally or must be cut through, it is a mistake to depend upon fillings anchored by undercutting the side walls. Any such practice weakens the side wall so that it is liable to fracture and release the filling, and invariably, sooner or later, the occlusal corners, if nothing more, chip away to the extent of undoing the work.

It sometimes happens that in opening one proximal cavity freely we may be enabled to cut out and fill another small one in the adjoining tooth without extending it extravagantly, and especially if decay has not weakened the occlusal wall. This should only be done when a vision of the cavity is clear and distinct, and access to it with instruments and filling material is free and easy. Especially is the above applicable when amalgam is being used for fillings. Such a filling may be regarded by some as temporary, as its margins are not carried out to self-cleansing spaces, but if carefully done it will serve a good purpose, and especially if pains are taken to keep the space between the teeth clean, as all patients should be instructed to do, especially after teeth have been filled.

In opening these proximal cavities enamel cleavers should preferably be used before burs, but in some cases it will be found advantageous to use a sharp drill (not bur) to bore through from the nearest occlusal pit into the cavity, and then use a fissure bur to channel through the bridge of enamel. It will then be easier to chip away the enamel with chisel, etc.

(To be continued.)

**DENTAL THERAPEUTICS.**

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.)

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**CHAPTER XV.**

In a farther discussion of the medicinal uses of the heavy metals in this connection we will call attention to a few pharmacological facts concerning silver and its preparation. The previous remarks on the action in general is very applicably applied to silver or its compounds, for, as we have already said, there are but few of these metals that are capable of producing any influence on living organism unless combined in some chemical form, and in a way that they will become disassociated and attack the protoplasmic structure of living plant or animal life. The only compound of silver that has attracted any special attention to its medicinal properties is the salt of silver known as the nitrate, especially is this true of its early use.

Farther on in this discussion we will call attention to some of the newer compounds of the silver preparation used for medicinal purposes. Since it is well known that the nitrate of silver has for a long time been extensively used it is sufficient to say that this compound is a caustic, astringent and an antiseptic agent, and when brought in contact with a solution containing proteids an albuminous precipitate is formed which at first is of a whitish color, but on being exposed in light gradually grows darker and darker. This dark precipitate is soluble in the chlorides.

A solution of nitrate of silver is more or less irritating to the skin causing an itching sensation followed by redness, while the more concentrated solution will cause blistering. When a solid crystal of this compound is brought in direct contact with the surface of the skin it will cause an eschar which is at first of a white grayish appearance, but which gradually turns black; this is due to the reduction of silver in the light.

The action of silver on mucous surfaces is very much the same as that produced on the skin, but perhaps more pronounced it is an astringent and in a more concentrated solution causes irritation and corrosion. The caustic action of silver does not penetrate as deeply as some of the other metals, mercury for instance, for the simple fact that its penetrating power is arrested by a membrane

of albuminate of silver. This is an important fact to be borne in mind for the reason that a great many members of the dental profession lay considerable stress upon the penetrating powers of the silver compounds.

In our previous remarks we said that silver nitrate was an irritant and an astringent. Now the question naturally arises: What is the astringent property due to, is it a contraction of the blood vessels or the coagulating powers of the protoplasmia? It would be the most natural thing to say that it is due to its coagulating powers, for in the case of irritation there would be a dilation of the blood vessels.

The acute poisoning from nitrate of silver produces symptoms already described in connection with the compounds of the other heavy metals, gastro-intestinal irritation, corrosion, sensation of burning in the throat and stomach, followed by nausea, vomiting and in severe cases purging. If a solution of nitrate of silver is taken by the mouth the white grayish membrane is formed, and, as has already been said, in the course of time turns to a dark color. The corrosion of the stomach and intestines is usually followed by weak pulse with shallow respiration, the features taking on a grayish appearance followed by collapse, convulsions, coma and death.

There has been many investigations on the subcutaneous intravenous injections into the lower animals. Owing to the coagulating power of nitrate of silver rendering it unfit for such experimental purposes, the hypo-sulphite of sodium and a preparation known as the albuminate of silver are the compounds selected for such experimental work. In the higher animal these substances seem to effect the central nervous system, and especially the medulla oblongata, which seems to act as a stimulus, for the fact that blood pressure is increased, pulse somewhat slower, increased activity of the vasomotor and vagus centers; but in a short time the respiration is slow and blood pressure falls. When this condition takes place paralysis of the striated muscular fibers usually takes place. In the majority of instances the heart seems to be but little, if any, effected, for it will continue to act for some little time after the secession of respiration. Therefore, it is safe to say that the action of the compounds of silver is first upon the medulla oblongata, followed by the rest of the central nervous system becoming involved.

In chronic poisoning of the compounds of silver the symptoms above described are never present in man. The chronic poisoning



follows the long period of administration of the various compounds of silver and none of the acute symptoms take place, for there are only small quantities of the soluble silver salts taken into the stomach; it is there probably changed into a chloride or albuminate. The metal is undoubtedly absorbed in some form of a solution, for traces of it have been found in the epithelial structure of the stomach and intestine. Most likely a soluble form of the metal may for a short time circulate in the blood, the greater part of which is thrown down in a granular form, which at one time was believed to be the metal silver itself, but the more recent idea is that an organic compound of silver is formed. This pigmentation of tissue with the silver compound is probably very different from the reduction of the metallic substance in sunlight, for in the latter process the change takes place in the absence of sunlight. These pigment granules seem to appear first in the cellular structure or in the cell itself and more commonly perhaps in the leucocytes. The granules afterwards pass out of the inner cellular substance in the fluid surrounding them, the connective tissue seems to take up the greater quantity of the coloring matter, and when in any great quantity a dark color appears on the skin and mucous membrane, a condition which is known as argyria. This condition was more common formerly than at the present time. However, the writer has had the privilege of seeing two of these cases, both being due to the administration of the compounds of silver for epilepsy.

The compound of silver most frequently used for this disease is the nitrate. Argyria has been caused by the use of compounds of silver in the artificial manufacturing of pearls, also the application of the nitrate of silver in the eye, throat and vagina. In the pigment action of the skin from silver compounds the color varies from a light gray to a dark slate color, which may follow its prolonged use. Ordinarily the discoloration is found over the entire body, but in some cases the dark discoloration appears only in the face. At the present time it is thought to appear first as a slate color at the margins of the gum tissue, and resembles in many respects the first appearance of lead poisoning. The pigment is formed as a rule in the corium and not in the epidermis as one would naturally suppose.

Where the discoloration is of any extent it will be found in the respiratory passages and the alimentary canal. In the latter locality, as we have previously said, the granules appear in the con-

nective tissue, especially in the intestinal vili, and here, as in the skin, it does not appear in the epithelial cells. In the aorta the tunica is effected, in the spleen the chloroid plexis is first effected and the glomeruli of the kidney is effected. Such tissue substance as serous membrane and mesenteric gland contain more of the glandular pigment than does the skin or mucous membrane.

This pigmentation seems to have no effects upon the general constitution, and persons so effected seem to live to advanced age without any material constitutional effects aside from the changes of the texture of the part effected. Local pigmentation may be produced by bringing a part in direct contact with silver compounds for a considerable length of time. Many attempts have been made to cure argyria without any beneficial effects. Blistering has been tried, but, of course, could not bring about the desired effect for the simple fact that the pigment lies deeper than the epidermis. Argyria has been produced in the lower animals. As a rule the skin remains unaffected, but the serous and mucous surfaces, lymph glands, spleen, liver, etc., are usually effected in the same way as men.

It would seem from the various experiments carried on by different observers that silver passes through the alimentary canal unobserved, a small portion being taken up, precipitating in the tissue and remaining embedded in the cellular structure, where it never becomes eliminated. It has been found that the injections of silver hypodermically may be excreted by the epithelial cells of the alimentary canal. When silver salt is injected into the frog it seems to be almost entirely excreted by the epithelium of the tongue, then swallowed and passes out with the excretory products through the alimentary tract, a condition of which is somewhat singular, as no other known poisonous substance is eliminated in this way.

The nitrate of silver contains some valuable antiseptic properties from the fact that it attacks the proteid molecule of the micro-organism, thus producing an albuminate of silver which is qualified to farther act upon the organism that yet remains unharmed. However, it must be borne in mind that from the fact that silver nitrate is precipitated by the proteids, chlorides render it less efficient as an antiseptic than many of the other compounds that might be employed which are less easily disassociated. A 10 per cent. solution of a silver phosphate in a 10 per cent. ethylendiamine has been used in gonorrhea. This solution must be diluted from 1-1000 to

1-5000. In the eye this substance penetrates more deeply than nitrate of silver. A lactate of silver (actol) and a citrate of silver (itol) has had some strong advocates for their antiseptic properties. Actol is soluble in water and coagulates albumin very much in the same way as nitrate of silver. The itol is only soluble in water 1 to 3800. The lactate of silver can be used 1-5 of 1 per cent. in solution for purpose of injection, while the citrate of silver can better be used as a powder. Argonin, which is a combination of casein, is soluble in water and is not precipitated by chloride or albumin, and does not contain the antiseptic properties as does the nitrates of silver.

All of the above named preparations have been shown to contain properties of value as antiseptic preparations in a large number of bacteria experimented on in test tube cultivations, but according to the observations of a number of investigators, their value is slight on the putrefactive bacteria of the intestinal tract.

Protargol and largin are both proteid compounds of silver. Crede makes great claims for protargol in urethrities. Devoretsky, Thiroloix, Schmidt and Neisser have laid considerable stress on the value of the antiseptic properties in pneumonia, acute pericarditis, scarlatina, diphtheria, typhoid fever and pyemia. While Baginsky, Nalteinius, Kunze and Krause have considered that the above named authors have placed too much value on these agents, and claim that their observations do not bear out the statements made by the above named authors. Nargol is a silver nucleide. It is alkaline in reaction and differs in some respects to the above named compounds, in so far as it will in time become precipitated with the chlorides, but never precipitates with albumin. This, in many respects, according to test tube experiments of my own, possesses greater antiseptic properties than the above named agents, especially with the strictly so-called putrefactive bacteria.

These so-called organic compounds of silver seem to have attracted considerable attention because of their less irritating properties than that of nitrate of silver. I have used all of these compounds in the treatment of lesions of the oral mucous membrane. I have thought in a great many instances that they possessed valuable properties in certain mucous ulcers, where the surface of the mucous membrane had become irritated by the deposits of a mass of saprophytic bacteria. But if such lesions happen to be more than

a superficial destruction of the epithelial tissue, something of a more radical treatment should be established.

For the treatment of certain forms of pyorrhea I have employed with considerable success argentol, which is an oxychinolin sulphate of silver. This seems to be a valuable preparation in cases where the pockets are formed of considerable depth, without there being the pus-producing organism.

A great deal more might be said in regard to these compounds of silver, but, as they have been so limited in their use except by a very few, it is at the present time a question of how much value they have over that of nitrate of silver.

The uses of the silver compounds for internal medication seems to have originated with the Arabs at the time when the so-called astrological medicine was so prevalent in that country. They considered that certain nervous diseases were due to certain conditions of the moon associated with silver, which accounts for the name Lunar Costic, or Lunarcy.

As has been said before, silver was used internally for epilepsy and various other nervous affections, but after many centuries of clinical observations there seems to be no strong evidence of its beneficial effects in any of these difficulties. In the external use of silver compounds, that is, where it is locally applied to the skin or mucous membrane, it is not likely that its use will be discarded very soon. It has been used in such conditions as diphtheria for the destruction of the false membrane and other similar purposes. A 1 to 5 per cent. solution may be applied to indolent ulcers, and a 1 to 2 per cent. nitrate of silver may be applied locally on the mucous membrane as an antiseptic. Of course, it is more or less irritating, and when such applications are made it is well to use a solution of sodium chloride to remove the excess of silver that may be deposited on tissue. In any of the infectious conditions of the eye a 1 to 2 per cent. solution is considered the routine treatment. In lying-in hospitals it is considered always wise to treat the eyes of the new-born in this way immediately after birth. As a prophylactic measure its use should be only in the hands of the most experienced and skilled physician, and followed by its application with the above named solution of sodium chloride.

For dental use the silver compounds are limited to a very few circumscribed pathological processes. The penetrating powers of silver compounds are so limited that its use in certain mucous le-

sions is of no special value. There are certain erosions of the tooth structure at the gingiva border where the application of nitrate of silver relieves that extreme sensibility, that a great many times is very annoying to the patient and unsatisfactory to deal with by the dentist.

The application of the silver compounds to any part of a tooth where a destructive process has been established must be done with the greatest care, owing to the fact that a discoloration may be produced that will cause considerable annoyance before it can be entirely removed. In decayed teeth where the micro-organism has penetrated deeply into the dentine, strong applications in the cavity will arrest the destructive process of the tooth substance for some little time, because of the great destructive power of the nitrate of silver on bacteria. If disintegration of tooth substance and only a short layer of dentine is left next to the enamel, this area of dentine will usually become discolored and reflect the discoloration through the enamel. I have observed that a portion of the enamel next to the dentine also showed a discoloration, showing that possibly, under certain circumstances, the silver compounds may attack certain organic substance at the end of the enamel rods, where the enamel rod rests upon the dentine.

The value of silver as an agent in dentistry is not to be regarded as an agent to be used indiscriminately, because it has its limitations. Its antiseptic powers are limited on account of its penetration into the tissues. As for the value of the newer remedies, or the so-called organic compounds of silver, they are so varied in their antiseptic properties that they will attract attention for a time, because they are beneficial in about 50 per cent. of the ulcerated conditions of the mucous membrane, but I doubt their value where there has been any extensive pus formation, because they are like all silver compounds, and, in fact, all compounds of metal have but little penetrating power.

A very interesting paper on this subject was recently presented before the Chicago Dental Society by Herman Prinz, of St. Louis. When one reviews the literature and sums up the observations, clinical and experimental, there are so many varied opinions upon the compounds of silver that it is a loss to know just to what pathological lesions it should be used, and where it should not be used. Suffice it to say that experimentally silver compounds have some antiseptic properties, and, as a rule, they are more self-limited in

their penetrating powers than that of the micro-organisms themselves, and a great many times a field of tissue is rendered more susceptible to the action of bacteria by the use of many of these drugs than if nothing was used at all, because we are all aware of one fact, that normal tissue has a self-limiting action against micro-organism. When bacteria produce diseased conditions to any great extent it is due to the extreme virulency of the bacteria and the low resisting power of the tissue, and many times in the application of an irritating agent to the tissue, the tissue is made more susceptible than they would be if the agent had not been applied. The old adage, "There is a salve for every wound," is true, but the great difficulty is to find the salve.

The subject of the action of the compounds of the heavy metals is one of the most inviting fields for pharmacological research, and would involve some very interesting facts, and especially so to the dental profession. There is a peculiar biological phenomena that exists between the application of some of the higher metallic substance to tooth structure, and all of these phenomenas are due to some physical law that exists in the protoplasmia and the metals themselves.

(To be Continued.)



# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

(By R. B. Tuller.)

### No. 10.

Knocking?

Who's knocking?

Did you get a thump?

That's nothing; we all get it.

There's a regular bunch of knockers, and they knock, knock, knock every time they get together, and mighty few escape.

It is a funny thing about this knockers' club. When they meet no one dares to get up and leave, but they all hold out to the end and rise together. Haven't much faith in each other.

After you? I should say they had been after you, and if you could have heard them you'd feel about like thirty cents.

It takes all sorts of people to make a world; even our little world.

I've heard it said that nine-tenths of the world are insane, more or less—and it would be pretty hard to draw the dividing line anywhere.

I wouldn't be surprised if the ones promulgating such an idea are a little bit off.

No, sir; I would not call you insane in any degree; nor even a crank, but you've got foibles; foibles in your frontal or bats in your belfry or something. I think it is just foibles.

But the knockers diagnosed your case as a good deal worse than that.

They took you up, as they usually do, because you were not present to knock back nor bring countercharges and disturb the equanimity of the occasion.

It is a great deal easier to come to a unanimous verdict when there is no opposition—when there is no dissenting voice to the sentiment prevailing.

Where several are gathered together with unity of purpose and

each with his little hammer, why, what one don't think of the other does.

And if they can't think of anything, they just hit some fellow a bing or two anyway. See?

The first knocker begins, generally, with a somewhat guarded tap. It's a feeler.

You see, it is not always safe to hit too hard at first crack for fear the man under discussion (to be) has a friend present.

It is safer to wait until the next man knocks and so on around until his turn comes again; then he can bang in.

For in ninety-nine cases out of a hundred a gentle tap will bring some hard knocks before it gets around to the first again, and each one in a different spot.

When they all get to butting in at once, boiler riveting, isn't in it; and it is said that the president could wield the "peen" before he became a professional gentleman.

A suspicion being afloat that your case is in some way lung trouble, percussion was naturally resorted to and *you* got a thumping diagnosis.

One man said it was gustatoritis because you were often so gusty, but I notice your taste for "hill-top" is not impaired and probably your taste for other things drinkable and edible is all O. K., so, to my mind, your case it not gustatoritis, though the symptoms are often gusty, and you don't always show good taste.

Whatever it is you have got, it is pretty bad and especially on certain occasions. It is intermittent. It is quiet except when you can make a grand stand play, and then it breaks out with intensity.

We who know you can tell when the spells are coming on. It is when you spring to your feet in meeting with an impressive flourish, ramming your hands into your pockets, and deliver yourself, not so much of eloquent diction, not so much of profound ideas, nor yet of ponderous wisdom, but of something radical, emphatic and sensational that you've had up your sleeve.

"Mr. President: I don't know much about this subject, but want to say just a few words. I don't see any use of the time of this meeting being wasted any further over this question. A lot of you fellers come here and git up and talk and howl 'round and split hairs and take up the time of the meeting, and when you've got through you ain't any nearer a solution of the matter than you were before you began. I am getting tired of this, sir, Mr. President, and



I want to see this meeting quit its clap-trap and get down to *business*. That's what *I* want to see, sir. You may talk from now to doom's day, sir, and you can't convince *me*, sir, that the eruption of the wisdom teeth marks the period of the eruption of wisdom in man's noddle, any more'n the cutting through of the eye teeth is evidence that a man is any shrewder or sharper than he was before.

"It is an old-time maxim that has been often repeated of a man who isn't shrewd: Why, he hain't cut his eye teeth yet. Gentlemen, that is all *poppy-cock*—all poppy-cock, sir. It ain't got any more to do with it than your granny's old cat. That's what I think, sir, and know from forty-seven years' experience. I know fellers that haven't cut their eye teeth yet that are just as bright and smart and sharp as anyone. Why, Mr. President, we settled this question about eye teeth years ago, that it didn't make any difference, and now this fool question comes up about the wisdom teeth making a man wise. Do you mean to tell me, sir, that when that back tooth begins to peek through the gum that that is the dawning of wisdom in an individual? 'Sposing there is retarded eruption? 'Sposing the wisdom tooth is impacted and won't never come through, mebby, do you mean to tell me, sir, that God Almighty is holding back that man's wisdom on account of that? What in the world is a man going to do who has impacted wisdom teeth that never will come through; or if they come at all, come late in life and have a — of a time getting through at that possibly. We've all seen 'em many a time.

"Then there's another end of this thing, Mr. President, that some of these fellers here don't seem to have thought of. It don't seem to have crept in to their brains, by golly! that some of them, according to their own theory, hain't developed any wisdom teeth nor eye teeth neither, Mr. President. The wisdom teeth in the majority of mouths that we have to deal with are generally some times nearly always the ones that give the most trouble and they have to lose 'em. Do you mean to tell me, sir, that when we take out those that we pull out a man's wisdom also, and let him drop back into imbecility? My learned friends on the other side of this question don't seem to have thought of this problem at all. Why, sir, Mr. President, if it was a fact, which it ain't, that a man got his wisdom with the eruption of the wisdom teeth, where'd we be at when only one erupted or two or three? We'd be one-sided. And the same way if some had to be pulled out and others left. Then, sir, what

complications of a legal nature we'd be up against if by taking out these wisdom teeth we injured, or run the risk of injuring, a man's wisdom. My friend Fangsnatcher here would have to quit business or be bankrupted with damage suits. We wouldn't dare pull wisdom teeth, Mr. President. We'd just have to let 'em howl.

"I'll tell you what *I* think, Mr. President, and I'm not afraid, sir, to git right up here on this floor and speak my mind. I think the whole caboodle of fellers who git up here and argue such a question as that the period of wisdom coming in a human being is at the time of the eruption of the wisdom teeth, hain't got no wisdom teeth, never had any and never will have any, and no eye teeth either. It is a regular dam fool proposition. That's where *I* stand in this matter, gentlemen, and I ain't afraid to let anybody know where *I* stand, sir.

"I hope, Mr. President, you will stop this discussion right here, and not take up any more of our valuable time. There are other things of some importance to come before this meeting, and I move that the subject be passed—and I move also that a vote of censure be passed, Mr. President, on the committee that ever let such a poppy-cock question come up here before a body of gentlemen of scientific attainments. You don't have to ask to know where *I* stand in this matter nor where I'm going to stand, by golly! till the crack of doom."

Well!—it strikes me, John, you are something of a knocker yourself. That comes pretty near being a swat from a swatter from Swatterville, and not the first offense, either.



**TRIUMPHS OF CENTRALIZED EFFORT.**

The study of biography teaches us that the most unhappy part of a young man's career is when he is undecided what he will do for a livelihood. It is an uncertain and unpleasant period, and we know from men who have gone through life what they think of the same epoch in a young man's career. Franklin tells us that "that man who has found his vocation has found an estate." And Daniel Webster says: "I sympathize with that young man who is yet undecided as to his lifework." While Patrick Henry adds: "He is rich who has found his lifework." So you see all through life all men have found this time in their careers a most unhappy one. The great German poet Goethe says: "Have an honest purpose and dare to perform it."

I congratulate you members of the freshmen class that you have now determined what you will do the remainder of your lives. I hope I am right when I say you will do this work the remainder of your lives. Let it be in thought and career your lifework. But to make this your lifework you must have a plan of operation. No great thing has been accomplished, no wonderful feat has been performed without there was a basic outline, a foundation upon which was built the superstructure. The ideal is always the basis of the real. Whatever a man wishes to perform, he first outlines in his mind the ideal, and then with his executive ability he goes on to perform and build the ideal into the real. The great World's Fair, held in this city in 1893, could be seen on paper in all of its colorings, in all of its glory and grandeur a year before there was even a spade used to tear the ground. Every dome, every staircase, every window, every balcony, every gangway, in that wonderful exposition was conceived and placed in a pictorial way months and months before the real was finished.

The statue of General John A. Logan, which stands on our Lake Front, was in the sculptor's eye months before it was in bronze. Every vein in that horse, the fierce and determined look of General John A. Logan, the triumph and position of the banner in his hand, were all as clear in the sculptor's eye as they now stand before us blazoned in the sky.

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\*Faculty address by Dr. B. J. Cigrand, dean, before classes, School of Dentistry, University of Illinois.

The ideal is the basis of the real, and so in your careers, if you wish to make of yourselves practitioners, who shall be a credit to the profession, your first duty is to lay out an ideal course. Say to yourself, this is the career I shall lead in the State University. Here is the path that I will tread and course I will pursue. Let us remember the counsel given to a young artist, who lay reclining upon his couch and wondered what the fates would work out for him. Directing his attention to a block of unhewn marble, with chisel lying by its side, a visionary sculptor appeared and thus addressed him:

"Sir:

There's the marble, there's the chisel,

Take it, work it to thy will;

Thou alone must shape thy future,

Heaven sent thee strength and skill."

We must all have a clear conception of the outlines of that which is to be established and constantly have our imaginary ideal vividly before us.

After you have determined your lifework and have laid down your plans, it now becomes your duty to concentrate your efforts and to centralize all your energies to execute those plans. We, as people, are always pretty successful in laying down our plans, but the great difficulty is to execute them. It is here where ninety per cent of the world fail. We are all fine draftsmen, but we fail as executors. We must go on with centralized efforts, and wed ourselves to our lifework, and stay with it through sunshine and rain. An excellent example of this indefatigable thrift in a certain direction is emphasized in the career of Columbus. He had his plans laid out. We all know from our histories that Columbus was driven from pillar to post; how discouraging news was given him at every point he visited, yet he was determined to reach the Indies by sailing west. His plans were carefully laid, and he had the energy, the determination to execute them; and when he went out upon the briny sea, his men soon tired of the journey and rebelled; they became so desperate in their attempt to return home that they threatened to take his life rather than sail another day. But his kind influence, his determined will, his iron nerve became supreme, and the men sailed another day and the setting sun revealed their reward. And so let us take the lesson from Columbus, that it is not enough to have a great plan of life, but it is more

to have the executive ability to carry out to the letter all that the plan specifies.

Phil Sheridan is another example of what a man can do with an iron will. The question was asked him after the late Rebellion, "How, Mr. Sheridan, did you become so great a general?" His answer was this: "It was an easy task, I love to work. When I was a freshman at West Point, I was an earnest, conscientious student. When I was a junior, I was the same way. When I became a senior, I performed that which the men told me in the curriculum should be performed. When I joined the U. S. Army and was made Captain, I thought of nothing but duty to the U. S. Army. When I became a lieutenant I again concentrated all my efforts to make a conscientious and worthy lieutenant and when I became a general I only performed the duties of a freshman. I simply repeated the efforts that I made when I was a freshman student at West Point. It was no harder to manoeuvre the troops in the late war than to manoeuvre my studies as a freshman."

This is the secret of success. If you wish to make good practitioners you are in the best position to-day to begin. Make ideal freshmen of yourselves and do the same all through the course. Have your ideal before you and model after it. This life, however, you will find is not all sunshine, and the land that has no clouds is a desert. Remember, that the little difficulties you will meet in this school will be the very things that will make you men. Little failures make us stronger; they prompt our judgment; they remind us of the wrong path. These obstacles go to make men of you. Whenever I meet a man who has not encountered obstacles during his life, and his career is one of sunshine, I do not believe I have met a real man. These obstacles are the things that test your career; they test your manhood; they tend to pull you from your path, and if you have power to resist it will only make you stronger men.

We all have our reverses and adversities; they are to our character building what wind is to the kite; the power which causes it to rise. Hardships and trials make an earnest man more earnest, while these antagonists discourage and weaken the insincere individual. Keep in mind the truism that "Good and great men are reared in the tempest of difficulties." Their individuality is not bred of leisure and luxuries but forged and hammered in the great shops of obstruction. We must all become acquainted with disappointment and learn the sterner lessons of professionalism from sad experiences.

Repeated revisions and constant emendations lead closer to the goal of triumph than inborn tact coupled with indolence.

There are students who enter college believing that there is a straight road from the freshman to a senior career. It looks so in the catalogues, so much that it reminds us of when we go to one of the depots in Chicago and buy a ticket to San Francisco, we look at the map of the railway company, and we observe that Chicago is at one place and San Francisco is indicated at another point. We behold a straight black line from Chicago to San Francisco. You buy your ticket, and before you leave Cook county you have deviated from the map line and when you reach Omaha you begin to get excited, and you do not know where you are going. When you get near the Rocky mountains the first thing you know, instead of going west you are going east. You say to the conductor, "I thought I bought a ticket for San Francisco." He replies, "You did, my friend." "I thought San Francisco was out west." The conductor answers, "It is." "What are you going east for?" "Because there is a large mountain ahead, and it was much easier to go around this mountain than to have gone over it or gone to the expense of tunneling it." And so in all of your excitement you are carried along on the track over to the Golden Gate.

Do not think the professors wrong when they take you backwards or take you a little out of the Freshman course. Stick to the track; they know the route and you will reach the Golden Gate in following their advice.

I am indeed pleased to meet these Juniors and Seniors. I congratulate them on having taken the first steps in dentistry and completed their course as Freshmen or Juniors in a successful manner. Remember, however, that you as Juniors or Seniors are in the midst of the battle. Remember, too, that a ship is never wrecked at the port from which it leaves. The wreckage is usually in the direction of destination.

Some years since the U. S. survey published an article describing the oceanic cemetery off of Nova Scotia. It related how hundreds and thousands of crafts had met their destruction on these shores. It stated also that at some points in this oceanic cemetery vessels were piled one upon the other. This also goes to emphasize that wreckage is in the direction of destination, and I hope to remind you as Juniors and Seniors that your destination is before you, and that wreckage lies in this direction. Do not cease to labor—for the in-

junction that the last shall come first and the first shall come last is applicable to student life. I also remember that at one time a Junior student, in writing home to his father, who lived in a small town, in order to appear as though he was mastering much at the dental school, wrote many Latin phrases to assist in bewildering and mystifying the old gentleman. At one time in closing his letter he said, "*Iter a tertio ad quartum ventriculum.*"

The old gentlemen thought that his boy was a brilliant fellow; that he knew what he was about, and all day long while on the farm the chickens and the other domestics were singing "*Iter a tertio ad quartum ventriculum.*"

The next letter came and the boy in his eagerness to show how he was progressing with the hidden art and science of dentistry, signed his name, "*Yours, Levator Labii Superioris Alaeque Nasi.*"

This aroused the old gentleman's curiosity. He immediately went to the village physician, and after complimenting the boy on his progress at school, said: "Here is a letter he wrote, I wish you would tell me what he meant."

The country physician, after looking it over, told him that it was merely one of the names of the muscles of the human economy. The father became interested in these strange phrases, and asked the physician for his book on these subjects, and during the dreary winter evenings the old gentleman studied Gray's Anatomy. Eighteen months after date the would-be intelligent boy wrote his father a letter, on which he might have used on the paper a black border, since it signified the death of a career. The father sent money and the boy came home. As the father greeted the son at the station he exclaimed: "*Depressor angulii oris.*"

Some of you may believe that you are occupying your time and studying very hard when you attend these lectures, and from here go back to your rooms, lay around and lounge about, exchanging stories or swapping compliments. To occupy your time properly as students is more of a science than an art.

I remember reading some years ago how some students were matriculated at West Point. It afforded me great pleasure, and the lesson I received from it I shall never forget. Freshmen were asked to go out into the yard, and asked to fill a tank. They went out into the yard, and immediately loaded it with cannon balls. They went to the actuary and informed him that the vat or tank was filled. The actuary came out into the ward, and looking at the tank said,

"You may think it is full, but it is not." "How would you fill it more?" asked the boys. "Throw in grape shot," said the professor. They threw in grape shot, and then said, "Now it is filled." He answered, "Not yet. Throw in buckshot and fill it to the brim." This they did, and said, "It is now full." He again answered, "Not quite. Get several buckets of water." The water was brought and dumped into the tank, and they stood back and exclaimed, "Now it is filled to the brim." He relied, "It is not. Go to town and buy ten pounds of brown sugar and add this to the vat."

You must not infer from this that you are not to enjoy recreation. Some exercise for the confined student no doubt is healthy and refreshing, but it should not be so excessive as in some of our older colleges, where sport detracts the attention of the student and diverts his mind from the lesson book.

I am reminded of a student in one of the eastern colleges who, having finished his four-year course and discharged his duties at commencement, rushed to a telegraph office and dispatched to his mother in Chicago these words: "I'm educated. Come and get me." Such a telegram was never sent from the dental department of the U. of I. For the men who matriculate here are men and women who hail from the middle classes and they have learned the value of both time and money in the harvest field or at the work shop bench, and they are earnest and active students of no small amount of stamina and determination.

Col says there are three kinds of students. One is like the old-fashioned hour-glass. He goes to lectures; the information pours in one ear and out the other; the other is like a filter bag. He allows all good to pass out and retains only the refuse or rubbish. He can tell all the weak points in a recitation; he can point out all the flaws all good seems to pass away, but all the bad and useless and such as is not wanted remains. The other, the real student, is like a gold digger, throwing away all the quartz and retaining only the precious.

It was the fond dream of George Washington to have founded in our country institutions of such a high character as would invite and solicit the rising American youth's attendance and thus hold them from visiting European schools. General George Washington was certainly correct when he advised Americans seeking their education abroad, stating that "Good American schools are to be founded as it superseded the necessity of sending the youth of this



country abroad for the purpose of education, where too often principles and habits unfriendly to a republican government are imbibed and not easily discarded."

If General Washington were living to-day he would be proud of our dental institutions, and he would learn to his great satisfaction that students now come to America. And at the great dental department of the state university the curriculum is complete and founded on the scientific.

The University of Illinois is eminently worthy of our united efforts, as it is to this champion of education that we owe a large portion of our post-graduate successes. She may well claim our admiration and solicit our devotion, as it is the solemn duty of each and every one of us to contribute our quota to the advancement of her usefulness and dignity and thus establish her among the unperishable institutions of the great and glorious republic.

Since having left her walls you have learned to cherish her noble influence, and in this instance distance has lent enchantment. Much like standing before a large and imposing oil painting. It is only at a distance that the life or spirit of the painting is disclosed to us; it is then that the varied delicate shades are made known to our vision and all blends in one harmonious picture. So with the university, whose grand outline and proportions are best known to those who have seen her at a distance.

It was on her floors that many of you were given sterner lessons of life's great battle and she has well prepared you for the conflict, for within you she has inculcated that which the winds can't blow away, while she has shaped your character to breast the trials and temptations of a human career. Those who choose the city of Chicago as their training school and the University of Illinois as their Alma Mater are wise indeed.

Chicago to-day is the medical and dental Mecca of the world, and the clinical advantages of this cosmopolitan city are unsurpassed by any other city on earth. Students are availing themselves of the opportunity of living and studying in a center where every possible facility in their chosen field of work can be afforded them, and this tendency of students to come to Chicago for their professional training adds new elements of strength to the generous prophesy that the name Illinois—already made famous by Logan, Grant and Lincoln—shall have a new laurel in the glories that come from possessing the greatest university of America.

## REPLY TO DR. BRYANT.

(By Geo. W. Schwartz)

In response to Dr. Emory A. Bryant's article in the March number of the American Dental Journal, entitled Dr. Schwartz's Article in the American Dental Journal, it is with much regret that I am compelled to state that I was totally ignorant of the fact that Dr. Bryant was the dentist in whose mind the idea of clasping a tooth mesially and distally originated. Had it occurred to me to mention the names of the men with whom I have exchanged ideas and gotten information covering a period of fifteen years, I would have mentioned Drs. Steadman, Taggart, Bonwill, Dayan, Condit, Prothero and Pruyn. The various methods of making clasps used by me were evolved by personal contact with other men doing this class of work in the line of removable dentures, together with what originality I could add to the detail of its construction and not from extensive reading on the subject. The article by me in the January number of the American Dental Journal mentioned by Dr. Bryant needs an apology, as it was outlined and written hurriedly on the train the morning of the day it was read.

Having made this style of clasp so long and the method being common property in Chicago, I thought no more of running down its origin than I did of seeking the original maker of the first crown or of the swager of the first metal plate. While I did not state in the article that any of it originated in my mind, I will now say I had never seen, heard nor read of this *particular* method of making a porcelain crown, i. e., with a backing of platinum or iridioplatinum together with pure gold burnished to make an accurate fitting clasp.

After due experience with this method, I felt that I had something good enough to tell to the dental profession. If it had been used by others previous to '97 I was not aware of it, and it will be my pleasure to place the honor where it belongs. I did know, however, that a clasp had been used, made of clasp metal running in a groove mesially and distally encircling the lingual portion of a tooth for artistic reasons. Dr. Taggart of Chicago brought the subject to my mind in '95. In using it, though, with porcelain crowns without backings of metal, the strain on them from the clasp often fractured the lingual cusp, which was the support, this, of course, being a serious objection, my reasoning led me to back the crowns up with platinum or iridioplatinum (a method I also incorporate in porcelain

bridge work). I found clasp metal so difficult to adapt to the grooves and backing I decided if pure gold could be burnished for other purposes and for bridgework by Dr. Carmichael of Milwaukee, it could also be done for clasps, and I did it to my satisfaction, then told what little I could about it, and since have had the pleasure of seeing two cases done in a very creditable manner at a clinic of the dental department of the state university of Iowa last February by young men who were in attendance at the meeting when the paper was read and the models exhibited. Whenever I have given a clinic or read a paper it has been freely and without restraint, with a hope that it might benefit other dentists and their patients. It has been my experience that all unselfish effort has its final compensation if we wait contentedly. I do not believe any man can conscientiously work with definiteness of purpose and continuity of effort without in due time being recognized and applauded as well as receiving the substantial benefits from his practice that naturally accrue.

We must not lose sight of the fact that "there is little in life but labor" and stick to it until the end with a cheerful heart.

At the Jersey meeting to be held at Asbury Park in July I will give a table clinic on clasp dentures, and hope to meet Dr. Bryant there, when I am sure we will become good friends. In conclusion I wish to say that I have long known of Dr. Bryant as a skillful man in prosthetic dentistry and believe he underestimates the esteem in which he is held by the dental profession. I heartily agree with him when he says, "I consider this clasp as important, if not more so than any invention I have ever made and given to the dental profession." I do also, and believe I voice the sentiment of the entire profession when I say we heartily thank him and "To him all glory goes."



## THE BRIDGE.

(After Longfellow—a long way after.)  
I stood on the bridge at midnight,  
When the clock was striking the hour,  
And my voice rose o'er the city  
For chagrin had given it power.  
And a sound of porcelain crushing  
On abutments and on piers,  
A flow of language failed me  
For a word that burns and sears.  
How often, or, how often,  
In the hours that had gone by,  
I had worked on that bridge by gaslight  
Till my throat was parched and dry.  
How often, oh, how often  
(I cannot tell a lie)  
I had cussed at the blasted solder,  
For, no matter how I'd try,  
How often, oh, how often  
With the flame from top or side,  
Still lumps and pits persisted  
And bands were gaping wide.

I had started out with vigor  
And my mind was free from care,  
As with stone, and file, and hatchet  
I did carefully prepare  
Upper central and first molar  
Till they fitted to a "T,"  
Then ground and backed the facings  
As nice as nice could be.  
But now, I could eat the liver  
Of the man who invented a pier,  
And the odor of brimstone from hades  
Will still cling to my language, I fear.  
And forever, and forever,  
As long as the solder flows,  
As long as the flame checks the facings,  
As long as the durned thing goes  
Just the way that I do not want it  
When I've worked with such just regard,  
I'll be glad that I crushed it to pieces  
And stood on it, good and hard.

A. S. G., *The Northwestern.*

### NEW CALCIUM AND OXYGEN COMPOUND.

At a meeting of the New York Odontological Society, held at the Academy of Medicine, Manhattan, N. Y., April 19, Dr. E. H. Garte, member of the Society of Chemical Industry of London, gave a demonstration of the properties and dental applications of some new oxygen compounds.

The lecturer pointed out that considerable attention was being devoted, by chemists and physicians, to the problem of manufacturing substances which would readily part with oxygen, on account of the value of this element in its nascent state as a harmless germicide and antiseptic. The only compound hitherto available was hydrogen dioxide, which could be prepared only in the form of dilute solutions. Quite recently, the lecturer said, the ingenuity of American chemists had resulted in the discovery of several new compounds, which were available both for the dentist's and the physician's use. Thanks, too, to the development of the electrical industries at Niagara, it was now possible to prepare these on a commercial scale at a reasonable cost. There were two of these oxygen compounds in particular, which promised to be of great value to the dentist. These were the sodium and oxygen compound, which had been called "natrozone," and the calcium and oxygen compound, which was called "calox."

The lecturer showed a number of interesting experiments, to illustrate the ease with which these compounds gave up oxygen. The most luminous one was the gentle heating in a glass tube of some iron filings with the calcium compound, when the oxygen united so rapidly with the iron as to raise the latter to a white heat.

The sodium and oxygen compound would bleach teeth discolored by age, decay or even smoking, restoring them to their pristine whiteness without destroying the pulp, for, while oxygen was death to germs and destroyed dead organic matter, it was without action on healthy cells or tissues.

The calcium and oxygen compound would make an excellent tooth powder and, the speaker said, if the public could be induced to use such a preparation, which would not only clean the teeth, but sterilize the mouth, it was not too much to say that most of them would be saved from the terrors of the dental chair, while the number of cases of pneumonia and lung disorders would be materially decreased.

## PROCEEDINGS OF SOCIETIES

PROCEEDINGS OF IOWA STATE DENTAL SOCIETY, HELD  
AT SIOUX CITY, MAY 5, 6, 7, 1903.

### CLINIC BY DR. BREWSTER—STAINED PORCELAIN.

Report by Dr. Ball—Mr. Brewster's clinic was a very interesting one. He had an exhibit of porcelain crowns and stained porcelain teeth. He showed a method of attaching the facing to the coping perhaps different from what most of us have been in the habit of doing, as he leaves very little of the post above coping; there is very little showing. He bends his posts down closely to it, and uses pure gold in soldering operations, claiming that it is not necessary to use twenty-five per cent platinum, and he also exhibited a coping for a full carved crown. In this method I think there is possibly one-sixteenth of an inch of the pin extending above the coping, and his method of attaching the foundation body is different from what I have been using, and what I have found others have been following, in that he simply forms what might be called an extension of the pin by baking foundation body about it, forming a dove-tail anchorage for enamel body. He forms the principal part of the crown from his enamel body. He also gave a method of staining sets of teeth for full dentures or facings in crown work or bridge work with his enamel oil colors. That was a very interesting clinic, because we all know that the ordinary sets of teeth put out look too much alike. That is, they present, when the patient smiles, the appearance of a row of grave stones, I might say, of a very white color. Now I think he claims that as we leave the central incisors going back that the laterals should be two or three shades darker, the cuspids correspondingly darker, and the bicuspid following in the same order, and the sets that he has stained certainly look very nice. He has another method of staining porcelain facings, where you are doing, for instance, a Richmond crown, or if you are forming an all porcelain filling, painting the incisal edge underneath; that

is, under the facing here; not painting the labial, but the lingual surface. If you desire to bring out a bluish tint or any required shading, you get it by simply adding on coloring sufficient to make it. I think that was very nice. Then he showed a method of swaging inlay matrices by securing an impression of the cavity with a very thick quick-setting cement. The method was, for instance, say, a deep molar cavity, and that I fancy is very hard to adapt the matrix by the ordinary method. First, I believe, he uses in the cavity Talcum powder, and while working the cement getting it ready for the impression he keeps his fingers well covered with Talcum powder, and then packs the cement very densely in the cavity, allowing it to set, removes the matrix, and removes the impression and forms a counter over that with cement, which gives a die and counter die of cement for adapting it as well as you can, and then using the water-bag swager in a very strong steel press requiring a great deal of force to bring that down and swages his matrix in this manner. He finds it necessary sometimes after the first swaging to burnish the edges of the cavity. He also exhibited a gold matrix body made for testing the value of gold matrices in inlay work. This fuses at a heat of fourteen carat gold, but has the property of retaining its form and color when carried to a much higher heat. I think, if I may say so, about 650 degrees is required for fourteen carat solder. Am I right, Dr. Brewster?

Dr. Brewster—Yes, sir; about 600.

Dr. Ball—Also exhibited a system of inlay technic for making a solid tooth, in which a cavity could be formed and then baked and then this cavity used for experimental work in forming inlays. That is, you have a nicely formed cavity in which you can match the shading in this cavity and form the shading of the tooth. I have no doubt but that this system would be a great aid to those taking up inlay work, inasmuch as by that method they can become accustomed to the use of inlay bodies, and until you have learned the manipulation of porcelain you know but little about it. You may have an idea of porcelain, but until you get to working with it you are all at sea. The fusing of the work—he gave the practical work—he did in the Pelton furnace, which, so far as I could see, worked very nicely and satisfactorily. This electric furnace is a very good furnace for the work.

Robert Brewster, Chicago—Dr. Ball very fully described the

clinic, so I have not very much to say. I think this system is useful, as he says, in the manipulation of porcelain, and there are a great many places in which you can use it. One has to make quite a number of experiments to become familiar with it, and there is another feature to that. You know there is a trouble with the inlay. It is a common complaint that when you have your inlay in position without the cement it matches beautifully. When you put your cement in there is a change. That may be due to some other cause than the cement, but with this system it is open to anyone to make it. Place it in the cavity and by using these colors that you can buy, or artist water colors you can paint the cavity and place it in position and see the effect of the different inlays upon it; in that way you can tell whether a very light colored cement should be used or a darker. Porcelain is being used a great deal. There has been a body made that when once the glaze is reached would hold its form for any length of time. In porcelain work there should be a sufficient length of time given. Where a man is not very careful he may give five or ten seconds more without spoiling it, and I think if you make trial of this it will be all right to do that. I am going to send everyone samples of this and you can see how it works. In facings where you paint the back of facings to change the edge or if you make a Richmond crown in place of using it in inlay when you find that you have got very little—supposing you have partially filled it and you find that you haven't got enough depth of color in that inlay. Now, it is a simple matter to put the last touches of paint on there and bake it. It takes up no space. All inlays are better by having the lower colors below and the darker colors above sometimes a darker shade. A greenish shade and others and the "XX" seems to go very nicely with them because that was made for work extending beyond the inlay. You know sometimes in thin teeth and where there is no dentine behind them that there is a transparency there that you can't match with any porcelain having a depth of color. So I made the double X ("XX") for that very purpose originally. Then it was found that it was nice to put over the mesial or distal surface, because when you look at an inlay right straight in the face of it, it appears to be one shade, and when you look at it at an angle of some forty-five degrees across the enamel surface only and you get a different effect; it looks somewhat darker, and you get a translucency there which is a great improvement. I thank you.



Dr. T. A. Gormly, Mount Vernon—I would like to ask Mr. Brewster if he has ever experimented with laying on of the gold to assimilate gold fillings.

Mr. Brewster—I have not seen the gold yet that would be a success to last any length of time. I have not seen it yet. I don't know whether it is in existence. Of course, the only way to do it is to lay on sufficient layers one above the other so as to make a sufficient amount; it could be done, but I never did anything of it.

Dr. T. A. Gormly—I have experimented with that and couldn't obtain any results at all that were satisfactory. There are crowns to be had with cavities already drilled in, so that you can fill them. That gives a very nice effect.

Report on the clinic of Dr. Work as given by

Dr. Woodbury—I saw the clinic and I want to say that the inlay was as nice an inlay as I have ever seen. I have seen a great many. The colors were perfectly natural. I think I have nothing else to say at this time.

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#### CLINIC OF DR. J. B. PHERRIN.

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Report by Dr. Bruner—This was a gold filling in the mesial surface of an upper lateral incisor involving the angle. I think most of you saw the filling. There are a few points that I think worthy of mentioning in regard to the filling. One is, the point of contact remained untouched by sandpaper discs or strips in finishing. It was simply burnished. Another is the good interproximal space which was obtained by packing or wedging the gold against the proximal surface of the adjoining tooth. In the step, Dr. Pherrin used hand pressure where some would have used a mallet. I think that is a good idea. I think this filling included about three-fourths of the incisal surface of the tooth and perhaps about one-third of the lingual surface. Dr. Pherrin told me that there were some cases where he did not use so much gold on the lingual surface. There is nothing more that I would care to say about the clinic.

Dr. Pherrin—The only correction I would make is in regard to the lingual surface as the doctor said in his last remark; I would use more gold in the lingual surface and not remove so much of the labial plate. I would cut the steps in the lingual surface just about the same in all cases in proportion to the size of the tooth.

Dr. Crandall—I wish that you would all get up close and get into

this. One of the nicest meetings I ever attended in my life was one of the smallest, but after the thing was over they got in a bunch and talked the thing over like a family trouble and never anything gave me more good than that did. In all the spirit of friendliness I want to criticise the doctor a little. If there is anything I see I don't think is right I want to talk about it, and if a fellow don't think that is right he can get up and say so and give his reasons for it, and we will have a chance to learn something. (Short recess for every one to move forward.)

President Bandy—Gentlemen: We were just discussing a filling that was made this afternoon by Dr. Pherrin. We had gotten into the proceedings and Dr. Crandall was speaking.

Dr. Crandall—Dr. Pherrin made a typical step cavity. He made a nice preparation. I didn't see the first roll he put in, but after he got started a little ways he used a foot plugger, an automatic plugger. From what little I know all the pressure you can get with an automatic plugger is four pounds, or about four pounds. Well, now, I think that if you take an automatic plugger and use a small point with four pounds' pressure you can't condense gold to anywhere near where it should be condensed. You should condense it past fifteen specific gravity, and you take a foot plugger and I think you cannot condense it over ten. Now I may be mistaken. That is the only criticism I had with the doctor's work, and I would like to ask him why he did that and if he thinks he did condense that filling hard enough. You have got to have a hard filling in a position like that to stand the stress, and there is lots of stress in this position. Where the least bit of change in form should occur, it would be an utter failure.

Dr. Pherrin—You asked why I used it that way. I used the ordinary loose rolled gold, and, although I am not qualified to speak as to the specific gravity of the filling, I believe it would get a very densely condensed filling. I will not say that it exceeds the density of the fillings condensed by the other pluggers. I have no antagonism to them on that point at all, but I find that these fillings behave nicely. I don't know that I ever had one break down. I am not in the habit of wadding in a great lot of gold at once. I believe that rapid work with large masses of gold is inconsistent with the best class of dentistry. There may be some cavities where we can save a great deal of time, but when it comes to condensing of cohesive filling it takes fine manipulation and plenty of time.

Dr. Cope—Mr. President: I was not here in time to see the operation, but I saw the finished work. It was very nice indeed. I would like to ask the doctor one question, though. I understood he used the mallet in the body of the filling and hand pressure over on the step. I would like to know why. Do you consider that the stronger condensing force?

Dr. Pherrin—That is the most interesting feature of the work. It has always been my custom in adapting gold to a cavity to use hand pressure in starting the anchorage in any filling. In all of these step cavities we must all confess that there is no great amount of dentine left under the plate. The impact of a blow from an automatic mallet, or from any mallet, would shatter it, I think. Therefore, I use hand pressure, and if you will examine these instruments you will find that they are very near like burnishers. They are worked down very smooth, and I would not change them for any serrated instruments you could give me for work in that position. I think, as to the foot plugger, you should use a finely serrated instrument.

President Bandy—Are there any further remarks?

Dr. Crandall—Next I will call upon Dr. Cook of Chicago for a discussion of the filling made by Dr. Brower.

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#### CLINIC BY DR. BROWER.

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Dr. Cook—I don't know that I have very much to say in regard to the filling. It seemed to me that it was a very nice piece of work. It was a mesial and lingual portion of a first bicuspid upper left side. He removed the pulp; I did not see the first part of the operation—that is, after the pulp was removed—I didn't see the starting of the filling, in fact; I didn't see the preparation of the cavity until it was quite along. I was rather pleased with the doctor's operation in the majority of the instances. I didn't think the finishing of the filling was quite what it might have been, and his contact was lost to a certain extent, or rather it was broadened, and I think that the cuspid will decay. I think that it will induce decay on that account; that the contact point was broader than it would ordinarily be—and the finishing of the filling was not, I think, quite completed. I don't know whether he considered it so or not. I saw that he had left it, and I looked it over, but his main point I think was showing the method that Dr. Black had recommended in

the preparation of gold pellates, which I am not particularly familiar with, especially the cutting of the gold foil. He uses Williams' filling foil, if I understand it correctly, and he cut the foil into eighths and sixteenths and so forth, and, taking the corners in this manner and drawing them together, making a pellate of gold in something like a bag form, as it were, by drawing all the corners together and wadding it up in that way. I think he spoke of it as Dr. Black's method, or the method that he had recommended. Of course, I think, under ordinary circumstances, with the present knowledge of inlay work, that the tooth was not one that I should have attempted to fill with gold. There was a question in my mind if our judgment would not be faulty in considering the cavity one for a gold filling, but it seems to me that an inlay would serve the purpose and would have been less work. However, it illustrated a very skillful manipulation of gold, and to my mind was a very valuable clinic, and I think that the doctor is to be congratulated. However, he should make his contact point a little better. I don't know that I have anything further to say on that subject. So far as I was able to see, I was very much pleased with the clinics of the afternoon, and certainly there were some very valuable points that were utilized in the preparation of the cavities and insertion of the fillings of all descriptions.

Dr. Brower (closing discussion)—It wasn't the ideal filling that I proposed to make. It was the illustration of the step cavity and the packing of the gold as I understand the way Dr. Black and Dr. Wedelstaedt wished us to do. I was not disappointed at all in the results that I got. I will say this for the filling: I got so tired before I got through that I had to quit; it bothered me. This was a large cavity—a very large cavity for a gold filling. I could put a better gold filling in such a cavity than I could a gold inlay. Inlay work I know nothing about. In regard to the point of contact—I would like to ask the Doctor to withhold his judgment until I have opportunity to dress the filling; I believe the contact point will be right. I will acknowledge that I didn't see it until I got almost through; that is, I didn't realize that I had such a broad surface. As to the method of the preparation of the cavity—it is true that I didn't form my cavity strictly on the Black method. I couldn't see how I could make a gold filling stay in that cavity and do the work without making deeper retainers than I understand the Black method strictly call for. I had a very good patient and he was very

patient. I see he is alive to-night yet, and I hope he will be able to continue through the balance of the meeting. But I will say just this in my own behalf in regard to the finishing and the contact point. I have not been able to stand up for more than three or four hours a day for the last three years, and I got pretty tired before I got through. I should not have undertaken that amount of work.

President Bandy—Any further remarks? I will call upon Dr. Finn to discuss the operation made by Dr. Clack.

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#### CLINIC BY DR. CLACK.

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Report by Dr. Finn—Dr. Clack's operation was an amalgam filling in the mesio-occlusal surface of an upper first molar. The mesial surface had decayed so that it let the molar move forward, and the Doctor had to use a separator to get space. He used the flat gingival seat also the occlusal step anchorage. He demonstrated the method of the Wedelstaedt matrix by using a thin piece of copper, bending the corners up and tying a ligature around the tooth. He used a quick setting alloy and when he finished he had an interproximal space that he could pass most any of his burnishers through. The case was not polished to-day, but it is to be finished to-morrow. We can tell more about the contact then.

President Bandy—Any questions? Perhaps Dr. Clack has something to say on the subject.

Dr. Clack—Mr. President, Gentlemen: Dr. Finn was very kind to me indeed. I was conscious that that cavity should have been filled with gold, but I was out hunting for an alloy filling. The patient was passed over to me from another operator because the tooth in which he wished to make a filling had a putrescent pulp in it. There was absolutely no separation. Dr. Finn has described the conditions very nicely. The only point that I can bring out, and the one that I wish to bring out, is the Wedelstaedt matrix. It is of copper and as thin as can well be rolled. Then anneal in your flame, a new matrix being made for each case. You slightly turn the corners that would come next to the gingival so that your ligature will not pass up above them, just simply to engage your silk as it passes up there, drawing it very tightly with the Wedelstaedt tie. I have used quite a number of matrices, and I was hunting for the ideal matrix. Take a cavity in the proximal surface of

any tooth where the adjoining tooth is missing, and almost any matrix on the market will suffice, but the trouble with any other matrix I have ever seen is this: It is impossible to get that little point of contact without the whole proximal surface of your filling contoured—but with this matrix, whatever point you exert sufficient force on, you may stretch the matrix sufficiently to make your contact point, and it does not spring back. The Ivory matrix—any of those I have used—while you may exert sufficient force for the instant to spring them up, the instant your force is withdrawn they will come back to place. I think if you will see the filling to-morrow at one-thirty,—the lady is to be here to have it finished,—you will see those points that I wished to bring out.

Dr. Poston—I would like to ask Dr. Clack if the elements do not act upon each other—if the mercury does not attack the copper.

Dr. Clack—It might do so if sufficient mercury was remaining in the filling. I have never had any trouble that way. I think we might find the matrix over there by the chair on the floor. I don't think that you will find any part of its surface showing the effect of the mercury.

Dr. Cook—If I might be excused for speaking again, I was very much interested in Dr. Clack's clinic this afternoon for the fact that he was demonstrating the use of a matrix that is quite extensively used in college work in Chicago, and in the teeth there, and is known as Dr. Black's method. Now I notice he speaks of it as Dr. Weldelstaedt's. I don't know who has the honor of instituting that matrix. Dr. Elliot Carpenter of Chicago claims to, and I believe he does in his method of operating, obtain as good contact and as good relations as anywhere with an ivory matrix; he uses that in gold amalgam, and I think Dr. Schwartz will bear me out when I say that Dr. Carpenter is one of the most excellent operators among the younger men in Chicago, and he uses the ivory matrix and defies any one to beat him with any other kind of a matrix in any kind of a filling or under any circumstances where a matrix is indicated. To settle the question to whom belongs the honor of this particular method, there will be published, soon I think, and in detail, an article by G. W. Ditmar on matrices. He has looked it up and will tell in that article all the matrices and who they were introduced by and how they are used, with some very excellent models and cuts, and anybody who is interested in this subject of matrices will be interested

in that one, because I think it is one of the most carefully written papers on the subject for years, and a very excellent discussion by men who have been interested in matrices for several years.

Dr. Schwartz—Mr. President, I have always understood the method Dr. Clack demonstrated here to-day was Dr. Black's. However, it may Dr. Wedelstaedt's. I don't know, but it has always been my opinion that it was Black's. In regard to Dr. Elliot Carpenter, I wish to say I think Dr. Elliot Carpenter is one of the best matrix operators I know of. I have seen his clinics on previous occasions with satisfactory results.

Dr. Clack—Mr. President, allow me to say that I did not mean to insinuate that no other man could use any other matrix and make that contact point. I wish to say that it was *my* experience with matrices that I could never find one—I have never been able to find one that I could do the work with like that, and thinking there might be others who might profit by that experience, I gave it. As to the person who is entitled to the credit for this particular one I am unable to say. I would like to be able to do so, that I might give all honor and credit to that person. Far be it from me to rob Dr. Black or any other man of the honor that justly belongs to him for any part of the excellence of any dental operation. This was especially brought to my mind in reading a piece that was in the Review within the past two months showing how a man, either through ignorance or design, withheld from the person who was deserving the credit that was justly his due, when he said, "I have been visiting St. Paul and Minneapolis, and I was surprised at the status of dentistry in the Northwest and in those cities. Some man"—mark the words—"or set of men, has been teaching the advanced principles of G. V. Black." Gentlemen, I believe the man who made those remarks knows just as well who that man and, through him, who that set of men have been as you know who is speaking to you now. He lacked the courage to give the credit that was justly due. I have no such feeling in relation to Dr. Black, and, if I may say so, it is not the intention of Dr. Wedelstaedt to rob Dr. Black of this, for after every man in this presence, after every man in the Northwest has given Dr. Black every credit that it is possible for him to give, he has only just begun. Dr. Wedelstaedt has gone farther and lays more credit to his door than I believe it is possible for any of us to do, so that I know it is not his intention to rob him. Un-

derstand me, I say this without any feeling. I am glad that the Doctor brought this out, because if I am wrong I wish to be placed right, but in speaking of this I am speaking of the person who has instructed us in these methods.

Dr. Cook—I wish to be understood in this matter. What struck me was this: In Chicago they call it Dr. Black's method and here they call it Dr. Wedelstaedt's. Now I don't know. I am frank to confess I don't know who introduced the method, but that was the point that I made. There we understand it as Dr. Black's method, but here you speak of it as Dr. Wedelstaedt's, and I simply am looking for information? I know Dr. Clack would not rob Dr. Black or any one else of any honor, nor neither do any of us wish to do that. Honor to those who deserve it regardless, and just that one point struck me. I don't know whether it is Dr. Wedelstaedt's or Dr. Black's. It is only a difference of where they were used it seems to me.

Dr. Pherrin—Just a word. In removing that matrix what time did you remove it? What time is it safe to remove it after the filling is condensed.

Dr. Clack—Generally within fifteen minutes, according to what alloy you are using; if it is a quick setting alloy, fifteen minutes will be sufficient.

Dr. Crandall—Dr. Van Dyke is present now and we will call upon him for the discussion of Dr. Conzett's clinic.

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#### CLINIC BY DR. CONZETT.

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Dr. Van Dyke—The doctor made a gold filling in a mesio-incisal cavity of an upper left lateral. He prepared his cavity, using the Wedelstaedt step, or really Dr. Black's method. There had been previous separation, quite a good deal, I should judge, and it will probably be several days before the point of contact is noticeable, however, the filling looked perfect to me.

Dr. Conzett—Mr. President: The only thing that I would say is this: As to putting Dr. Wedelstaedt and Dr. Black together. The men who have been taught by Dr. Wedelstaedt have been taught the Black method. Dr. Wedelstaedt went down to Jacksonville in 1891 when the thesis of Dr. Black was brought out and studied under Dr. Black, and became an enthusiast in his methods and then began to teach those methods throughout the Northwest, and we



men who have been studying with Dr. Wedelstaedt have been told by him repeatedly that he has been teaching us the methods of Dr. Black, modified perhaps by Dr. Wedelstaedt, as all methods will be modified by the personal equation of the operator; just as I will perhaps modify the teachings of Dr. Wedelstaedt, and just as perhaps somebody else will modify that which I bring him from Dr. Wedelstaedt, and so when we speak of Dr. Wedelstaedt's method very largely we are speaking of Dr. Black's methods. Dr. Wedelstaedt, as I said, teaches Dr. Black's methods, modified perhaps by Dr. Wedelstaedt. So this step cavity which I made was one which was introduced by Dr. Black, which was also modified by Dr. Johnson and published in his book, and perhaps modified to a larger extent by Dr. Wedelstaedt.

Dr. Crandall—The next is the clinic by Dr. Dana—C. W. Bruner we will have to discuss Dr. Dana's clinic.

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#### **CLINIC BY DR. DANA—PORCELAIN INLAY IN THE LABIAL SURFACE.**

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Dr. C. W. Bruner—Dr. Dana's clinic was a porcelain inlay in the labial surface of a superior central incisor. It was a simple cavity. He used a platinum matrix and Dr. Thompson's burnishers. I did not see the beginning of the operation or the instruments with which the cavity was formed, but there is one thing in particular that I would speak of in reference to the cavity formation, and that is the seating guide in the base of the cavity. This was made, as I understand it, by using a number two round burr, forming a triangle in the base of the cavity with a slightly raised ridge in the center. This was found useful in the final setting of the inlay in getting it into its proper position. Brewster's porcelain was used and the inlay was fused in the Turner gas furnace. The first fusing was a foundation body, number thirteen. This fusing required about three minutes and a half. The second fusing was of a lighter shade. This was done in two minutes and twenty seconds. The third and last fusing was still a lighter shade, and was also done in two minutes and twenty seconds. The final setting of the inlay was under pressure without the use of the rubber dam, although the doctor told me that it was his custom to use the rubber dam, but in this case he did not and I think he obtained very nice results without it. There was very little trouble occasioned and the patient was very

careful not to get the parts moistened. One feature which interested me very much and which I desire to compliment the doctor on was his method of retaining the inlay under pressure during the setting of the cement. This was done by means of a piece of orange wood shaped to the labial surface. Having the cement ready, the cavity properly dressed and the inlay properly fitted, he then cut a small piece of vulcanite rubber a little larger than the face of the inlay. After smearing the cavity with a thin mix of cement, he placed the inlay in position with the rubber between the inlay and the orange wood stick, tying it down with considerable force. The setting of the inlay required forty-five minutes. The patient wanted to get up under that time, but the doctor wisely held him to it for forty-five minutes. On the removal of the compress the filling was coated with a resinous varnish which comes with Harvard's cement, this cement having been used in the setting. The color of the inlay before the setting was a little light. The cervical margin was a little short, but this, rather than being an objection, was an advantage rather than if it were too full. It is better that an inlay be a little short of being full to the labial surface of the tooth than to be too full. The final appearance of the inlay before the setting, as I stated before, was as if it were a little too light. When it was set, however, the cement would tend to reflect a little and would darken the shade. The cement was not thoroughly and entirely removed from the labial surface of the tooth, but was left in that position and coated over. I thank you.

Dr. Dana (closing discussion)—I think Dr. Bruner has been very charitable indeed with my clinic. The object was to show the use of the Thompson burnishers and the Turner furnace principally. I did not expect to have especially finished results. I think porcelain work to be successful should be done in a very quiet and secluded place. It is a class of work that calls for extreme care with regard to detail. I do not think you can get that in a public clinic.

There is too much on one's mind, too much confusion. I am not an advocate for porcelain for all cavities. I think it has its place, and in its place it is far better than other materials, such as gold. The seating guide that was referred to, I was made familiar with by Dr. Reeves, who instructed me in regard to its use. The setting of the inlay and getting the pressure with the orange wood stick and the vulcanite rubber was picked up somewhere, I don't know just where. It was not original with me.

Dr. Crandall—Dr. Grove is present and we will call upon him to tell us about the new filling material of Dr. Ivory's.

**CLINIC BY DR. IVORY—A PLASTIC CRYSTAL ALLOY.**

Dr. Grove—Mr. President: The new filling material on which I have to report this evening is one of Dr. Ivory's latest productions. It is, as its name implies, a plastic crystal alloy. The qualities possessed by this new material are the qualities that we would most nearly find allied to tin foil or soft gold filling, and it has the property of cohesion with gold which makes it a valuable material as a base for large cavities, in which gold fillings are to be made; and I think, especially in four walled cavities or probably matrixed cavities. It will make a very dense and hard filling. It is also said to possess some therapeutic qualities or value in the preservation of the gingival margin in cavities. It becomes very hard and dense, and is devoid of contraction and expansion. If it possesses all these qualities I should think that it is a very valuable material in the dental office to combat our common enemy, caries of the teeth. It is a new substance to me, and I don't know very much more about it to report. I think there is one thing in regard to it, as to the form of it. I think it might be gotten up in cylinders, so that it would be more convenient to adapt it to cavities than in the form it now is. In cutting it off of the bulk it does not permit of being used under the plugger in as nice a way as it would if it was in a better form, say, in a varied assortment of cylinders. We are apt to amalgamate some certain portion of it.

Dr. Conzett—You speak of amalgamating; is there any mercury in it?

Dr. Grove—I think not, but I think the metals are probably metals that will amalgamate with each other—in cutting the pellate from the bulk with the shears they do leave a hard surface on the cut edge of the pellate so cut off. I might add that the metal does receive a very high polish, and can be finished with a gold veneer very nicely, and does not require very much of a veneer either.

Dr. Hinkley—Question with regard to the cohesion between the gold and the alloy.

Dr. Grove—I should judge by the way that it works under the plugger that it is cohesion. As I said before, my experience with it is very limited. I have never seen it until this afternoon, when

I made one filling with it, and it seemed to work something like tin foil, and when finishing up with the gold it seemed to be cohesion. I cannot report as to the action that the saliva might have upon this material at all, because it is new. I would like to hear Dr. Ivory on this subject; he knows more about it than I do.

Dr. Ivory—I have had an experience of about six months in this alloy. However, the plastic alloys that I have been experimenting with have not been as perfect as this in its present form. It is claimed for this material that the metals are absolutely pure—just as pure as when they were shaved from the ingot—and that the metals are cohesive and have a decided affinity for gold. I have placed a number of fillings in teeth, and in places where they have been subjected to great stress. I have had two fillings in cuspid teeth veneered with just one piece of gold. They have been in for about nine months. No change has taken place, and it would be impossible to tell but what they were all gold fillings. It has its place, I think, and perhaps it might be abused on account of its being so readily placed in a cavity. But there is a place for this in dentistry, and I think a great place. My brother has been experimenting with this for a long time, and very soon will improve it and put it on the market in a better form than it is now. I don't know that there is anything else that I can add. Some have asked me to demonstrate it, and if I can I will be pleased to do so.

Dr. Hinkley—The question that arose in my mind was whether you could get cohesion there between these two parts. As I understand cohesion, we have a union of like molecules of the same substance. We know all of us when we condense gold we have a solid throughout, and it occurs to me that we might have a separation between those two materials instead of a cohesion like you get with molecules of like substances. We all know who have worked in tin that after a few years there is a solidification; it seems to have become solid; it becomes very solid. We know that we can build up fillings of tin, and if we return to the fillings in a few years we have a very desirable filling. That is my experience with the use of tin foil. It occurs to me that we might have some trouble with this material which seems to be made up very largely of tin.

Dr. Pherrin—I would like to ask if this has been used by any other dentists who have reason to recommend it?

Dr. Ivory—I might say that it has had a very extensive sale throughout the East; my brother has been unable to supply the demand in the Eastern states. It is its being so easily adapted to the walls of the cavity and its affinity for gold. Its best use is for starting gold fillings. The greater portion of the cavity can be filled

with this material, and the filling finished with gold—the gold cohering with this material as readily as with gold itself. Many gold fillings could be put in that would have to be amalgam were not some such material as this used. It has a great many of the properties of tin, and is claimed to be a better tooth saver than amalgam.

Dr. Brower—Speaking of the abuse of the material, I think it would be a sad abuse to undertake to put a filling in as has been suggested. It may be of considerable use to place in deep cavities and then finish with gold. How strong it is I don't know, because I never packed a filling with it. Of course the old tin workers can tell us more about a filling of that kind than a man that never packed anything but gold. It seems to me that a filling of that kind where there would be cohesion would be too soft for use. There are old tin fillings that have been in a tooth for thirty or forty years, so that there could not be any objection to this material. If there is cohesion with the gold, which I should judge there is from the looks of the fillings he had on the table, it would be very nice in some cases.

Dr. Work—Mr. President: I would like to ask what especial advantage they claim for this sort of filling material; if it takes more kindly to the teeth, if it has any chemical action that is liable to prevent any further decay, if it has any better strength than amalgam, or if it has any better serving qualities than gold? Now, it seems to me if this material is good to put in the base of a cavity it must certainly have some chemical action or something of that sort, because it surely cannot be said that the benefit would come in the cheapness, for when you come to consider the amount of money that we put in a cavity in making a filling with gold, we couldn't save very much with the use of this kind of material or any other cheaper material. And I would like to know what they claim for the material.

Dr. Ivory—Discussion.

Dr. Work—Mr. President: That is something we can't discuss—the properties this material has, as it is a patented preparation and covered by copyright. While it may be claimed that it is a better tooth saver, all we can claim is that it is a time saver, and that it is cheaper, and as I am not specially interested in that kind of business I will say, "No, sir."

Dr. Cook—The dental profession has always been, it seems to me, a kind of a mark as it were for new and improved methods. About every six months there is a new preparation put on the market that is going to preserve all the teeth and the profession will have nothing to do with them, and every once in a while we have a material put upon the market patented or copyrighted in some way or other that is going to do this wonderful work.

Dr. Work—Archite!

Dr. Cook—Yes, I think we as dentists, most of us, should come

from Missouri; let them show us. I don't feel for myself that we should adopt or take up a certain line of treatment or method because somebody has said that it was good. Now, the archite is one of the very unpleasant things that the profession has had to deal with. I would have to know something about it. Now, it may be the best stuff in the world. I don't know anything about that, but I want to know something of it; I want to know something of its chemical or its physical properties. It probably is adaptable to the tooth structure, probably has the most valuable preserving qualities for the tooth structure, but it may only do that for six weeks, and when we can be shown fillings that are put in the mouth and have done service for a year, why then we may consider it a valuable substance. Otherwise I don't see that we could get anything out of it. Now, I have no reference to any personal matter at all, but as I say, the profession is constantly being humbugged, as it were; not in this case, perhaps, at all, but we know that there are thousands of tooth washes on the market. I say thousands—perhaps not that many, but there is not a single one on the market that I know of that is as good as salt water; take common salt water and it would be as good, but they say it is deodorous, and the grandest and the best because it has all the attributes of a great remedy, and they use it many times to the detriment of the tooth structure; and I think that until we know absolutely what we are using, the best thing is to stick to the tried things that we know that we can handle to advantage. I have made no reference to this in a personal way at all, but if they can show me what this material is,—it may be arsenic. Now, we might preserve the teeth with arsenic if we could get it in there as a wash, and various substances, but there might be some objections to using it; we couldn't use arsenic probably. Not until after the person is dead anyway, and so I would not use it. I might try it in a block of some kind to see how it would work into a cavity, but I wouldn't put it into the mouth. I would not use anything in the mouth as a medicine I didn't know exactly what I was using.

Dr. Bandy, President—We have now discussed all the clinics that have been held to-day. We have been rather unfortunate in a way to-day. We were not able to make good connections between our patients and our operators. We have seven clinics left over from to-day to use to-morrow, so we can promise you up in the twenties some place, and we hope to get straightened around promptly at one-thirty and get to business at once. To-morrow morning at eighty-thirty we will start in on the regular program, which includes essays by the members of the Iowa State Dental Society and invited dentists in different parts of the country; and Dr. Gormly wishes me to announce before adjourning that the treasurer will be at the table near the door to receive the dues which have not yet been paid.

Adjournment.

# REPORTS OF MEETINGS

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## SOCIETY ANNOUNCEMENTS

### THE ILLINOIS STATE DENTAL SOCIETY.

Three hundred and fifty dentists met at Peoria May 10-11-12 in the fortieth convention of the Illinois State Dental Society. An initial meeting of the executive council of the organization held in an anteroom delayed the hour of opening somewhat and it was nearly 11 o'clock when the president called the assemblage to order and the proceedings began.

The Rev. Dr. Simmons, of the First Baptist Church, made a fervent appeal to the throne of grace on behalf of the body, begging that its opportunities for friendship, research and achievement might not be curtailed through any untoward act of a well-meaning Providence. Then the mayor was introduced and made a modest little speech of welcome, in which he voiced the pleasure of himself and his constituency in meeting so important and clever a lot of gentlemen and ladies and cordially extended them the hospitality of the city, hoping, in conclusion, that they would carry away with them a pleasant impression of Peoria, now looking her best in her spring freshness and beauty.

E. K. Blair responded to the mayor's address. He said in beginning that he hardly knew why he was selected for so delicate a task, unless he was the only member of the committee of last year who had voted against meeting in Peoria. He compared his feelings at that moment to those of Colonel Payne on the historic occasion when he had expressed his joy in being in Kentucky, where the corn is always full of kernels and the colonels full of corn.

He avowed that in spite of his opposition to meeting in Peoria he felt an equal pleasure with all of his confreres in being in that beautiful city and in appreciation of the kindness and courtesy of Mayor Woodruff's remarks. Continuing, Dr. Blair reviewed the remarkable progress made in scientific dentistry since its inception

only a few decades ago and drew from it many happy auguries for the future.

He was followed by the president, F. H. McIntosh, who delivered his annual address, giving an interesting resume of the work done by the society since their last meeting and thanking his fellow officers for their valuable assistance and hearty co-operation with his own efforts. A discussion followed the paper, and the meeting adjourned until 2 o'clock. The afternoon's session was entirely given over to reports from the various committees, the feature of the session being the presentation of resolutions from the Odontographic Society of Chicago urging the affiliation of all local organizations with the state society.

Dr. Brophy, the veteran dean of the Chicago Dental College, briefly urged greater organization among the dentists. He mentioned the fact that more than 80 per cent of the dentists of Sweden are members of the Swedish national dental society, while only 2 per cent of the dentists of the United States are members of the national society in this country. He also regretted the fact that only about 400 Illinois dentists are members of the state society. Dr. Brophy declared that reciprocity should exist among the states, by which a dentist of one state might be allowed to practice in another state without undergoing examination.

After discussion of the president's paper, a discussion which threatened to plunge the meeting into politics, a report was received from the chairman of the committee on dental science and literature—G. V. Black of Chicago—J. H. Prothero, chairman of the committee on dental art and literature, made his report, describing many new and valuable inventions. This was followed by a report from E. K. Blair, chairman of committee on increasing the membership of the society. "The Advantages of Organization," a paper by C. R. E. Koch, followed. Resolutions from the Odontographic Society of Chicago were read by A. D. Black.

The report of Dr. Blair, the paper by Dr. Koch and the resolutions by Dr. Black were all discussed together, as a result of which a reorganization plan was adopted, which briefly is as follows:

Local societies are to be organized in each county. Members of county societies are eligible to membership of the state society, and become members of the state society as soon as per capita dues are paid by the secretary of the county society to the secretary of the state society.



No one is eligible to become a member of the state society in any other way, except by special dispensation of the executive committee, as for instance, in cases where the county organization cannot be effected. It is thought that the plan, which is the one adopted by the Illinois State Medical Society, will increase the membership of the state society, and the secretary of the county society, being in closer touch with the members of the state society from his county, can more closely watch the conduct of the members, and in this way prevent unethical dentists from remaining members of the society.

This reorganization plan was adopted without dissenting vote.

In the evening a paper by W. H. Taggart of Chicago, "Symposium on Inlay Work—Advantages, Disadvantages and Peculiarities of Inlays," was read. "Cavity Preparations for Inlays" by C. N. Thompson of Chicago, illustrated by stereopticon views, and a paper on "Gold Inlays" by E. H. Allen of Freeport, followed.

"A Microscopic Study of Cements" by G. H. Poundstone, also illustrated, was given. This latter paper was discussed Wednesday morning by G. V. Black, J. E. Hinkins and J. P. Buckley of Chicago and Hermann Prinz of St. Louis. This was followed by a paper read by W. A. Price of Cleveland on "The Color Problem of Baking Porcelain and Its Solution with the New Pyrometer Furnace." This was discussed by C. N. Thompson and Hugo Franz of Chicago and C. B. Helm of Rockford. "Gold Fillings," a paper by Edmund Noyes of Chicago. "A Glance at the Business Side of the Profession" by R. M. Pierce, Rock Island. Discussion opened by C. N. Johnson, Chicago; G. H. Henderson, Springfield; W. E. Holland, Jerseyville. "Gingival Outline, Preservation and Crowns," D. R. Phillips, Chicago. "Masticatory Changes Induced by Food Environment," illustrated with lantern, T. E. Powell, Chicago. "Investment Compounds" by J. H. Prothero, Chicago. Discussion opened by W. H. Taggart, Chicago; B. C. Brophy, Chicago; C. D. Sitherwood, Bloomington. "A Bandless Porcelain Crown," R. A. Pritchett, Whitehall.

Wednesday forenoon was devoted to clinic. The papers and discussion took up all the time on Wednesday afternoon and evening and Thursday afternoon, Thursday forenoon being given over to clinics.

The following notice appeared in the program, and to enforce this there was an officer in uniform stationed at the door allowing

no one to enter who did not have the badge showing him to be a member in good standing.

"Owing to the fact that a number of gentlemen residing in the state, but who are not members of the society, have made it a practice for several years of attending the clinics and crowding about the chairs, to the exclusion of our own members, it has been found necessary to debar from the clinic room all but members of the society, or those who have made application for membership, and invited visiting dentists from outside the state.—By Order of Executive Council."

The following officers were elected for the ensuing year:

President—C. N. Johnson, Chicago.

Vice-President—W. F. Whalen, Peoria.

Secretary—Elgin MaWhinney, Chicago.

Treasurer—C. N. Johnson, Chicago.

Librarian—J. L. Cummins, Metropolis City.

Members of Executive Council—C. E. Bentley, Chicago; O. L. Frazee, Springfield; G. E. Warren, Pontiac.

Chairman Executive Committee—Dr. M. L. Hanaford, Rockford.

The ex-officio members of the executive council are President Johnson and Secretary MaWhinney.

The other members of the executive council are as follows: Terms expire 1905—E. K. Blair, Waverly; O. M. Daymude, Monmouth; D. M. Gallie, Chicago. Terms expire 1906—A. H. Peck, Chicago; W. A. Johnston, Peoria; G. W. Dittmar, Chicago.

The meeting was then declared adjourned to meet at Moline in 1905.

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### ILLINOIS DELEGATES TO INTERNATIONAL DENTAL CONGRESS.

Illinois will send a delegation of more than one hundred dentists to the International Dental Congress to be held in St. Louis next September. This will be a larger representation than will be had by any other three states in the Union.

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### APPOINTED.

Dr. C. P. Pruyn of Chicago was recently appointed by Gov. Yates as member of the state board. The governor is to be congratulated.

**STATE SOCIETY MEETINGS.**

- California State Dental Society, San Francisco, May 16, 17, 18.  
Florida State Dental Society, Atlantic Beach, May 25.  
Georgia State Dental Society, Athens, June 28.  
Indiana State Dental Association, Indianapolis, June 14, 15.  
Kentucky State Dental Association, Louisville, May 17, 18, 19.  
Maine Dental Society, Bangor, July 19, 20, 21.  
Massachusetts Dental Society, Boston, June 1, 2.  
Michigan State Dental Association, Lansing, June 28, 29.  
Minnesota State Dental Association, St. Paul, June 16, 17.  
New Jersey State Dental Society, Asbury Park, July 21, 22, 23.  
North Carolina Dental Society, Morehead City, June 22-25.  
South Dakota, Aberdeen, S. D., June 7.  
Washington State Dental Society, Seattle, May 26, 27, 28.  
Wisconsin State Dental Society, Manitowoc, July 19-21.

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**NATIONAL SOCIETY MEETINGS.**

- National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.  
Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.

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**WISCONSIN STATE DENTAL SOCIETY.**

The thirty-fourth annual meeting of the Wisconsin State Dental Society will be held in Manitowoc July 19-21, 1904. A cordial invitation is extended to all ethical practitioners to meet with us.

W. H. MUELLER, Sec'y,

A. G. FEE, President.

Madison, Wis.

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**SOUTHERN WISCONSIN DENTAL ASSOCIATION.**

The tenth annual meeting of the Southern Wisconsin Dental Association will meet in Janesville, Wis., June 8 and 9, 1904. We anticipate a pleasant as well as a profitable meeting, and a cordial invitation is extended to all.

C. W. COLLVER,  
Secretary, Clinton, Wis.

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**INDIANA STATE DENTAL ASSOCIATION.**

The forty-sixth annual meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, Ind., Tuesday, Wednesday and Thursday, June 14, 15 and 16th.

Drs. J. E. Weirick of St. Paul and J. E. Nyman of Chicago will be among the essayists. The executive committee has arranged for a number of good papers and clinics.

Railroad rates on all roads in Indiana. Address,

J. Q. BYRAM, Indianapolis, Ind.

#### **MINNESOTA STATE DENTAL ASSOCIATION.**

The twenty-first annual meeting of the Minnesota State Dental Association will be held in St. Paul on June 16, 17 and 18.

Dr. Capou of Philadelphia will read an essay and give a clinic on inlays. Other essayists and clinicians have been selected from the best operators in the northwest.

All ethical dentists are invited to attend the meetings. Any further information will be cheerfully furnished by either of the undersigned.

GEO. S. TODD,

J. O. WELLS,

Sec'y, Lake City, Minn.

Chairman Executive Com., Masonic Temple, Minneapolis, Minn.

#### **CHAMPAIGN COUNTY DENTAL SOCIETY.**

The dentists of Champaign county have formed a dental society. The list of officers follow: Dr. F. O. Sale, Urbana, president; Dr. H. E. Davis, St. Joseph, vice-president; Dr. J. Addison Brown, Champaign, secretary; Dr. W. H. Boon, Champaign, treasurer.

#### **DAKOTA STATE BOARD OF DENTAL EXAMINERS.**

The South Dakota State Board of Dental Examiners will hold its next regular session for the examination of applicants for license at Aberdeen, S. Dak., June 9th, beginning at 1:30 p. m. All applicants will be required to insert at least two gold fillings, and such other work as the board may require. Besides the regular operating instruments, each candidate is required to bring a bridge of not less than four teeth, including one Richmond crown and one molar shell crown, invested ready for soldering. Application must be made to the secretary at least one week before examination takes place.

G. W. COLLINS,

Secy. S. Dak. State Board D. Ex.

#### **WISCONSIN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice den-

tistry in Wisconsin will be held in Milwaukee, at Hotel Pfister, June 1, 1904.

Application must be made to the secretary fifteen days before examination. Candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

J. J. WRIGHT, D. D. S.,

1218 Wells Bldg., Milwaukee, Wis.

Secretary.

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### **EASTERN INDIANA DENTAL ASSOCIATION.**

The Eastern Indiana Dental Association held its annual meeting May 4-5 and adjourned to meet next year at Greenfield. The officers chosen are: President, B. S. Binford, Greenfield; vice president, R. I. Bell, Greenfield; secretary and treasurer, G. E. Stevenson, Liberty.

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### **CONNECTICUT DENTAL ASSOCIATION.**

The following officers were elected at the annual meeting which closed April 20: President, D. W. Johnson, New Haven; vice-president, E. B. Griffith, Bridgeport; secretary, Fred Hindsley, Bridgeport; assistant secretary, C. C. Prentiss, Hartford; treasurer, W. O. Beecher, Waterbury.

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### **TEXAS DENTAL ASSOCIATION.**

The following officers were elected at the Texas state meeting held at Corsicana, May 8, by the Indian Territory Dental Association: C. W. Day, Vinita, president; A. E. Bonnell, Muskogee, vice-president; F. A. Stickel, Jr., Muskogee, secretary; A. S. Long, South McAlester, treasurer. W. W. Bryant, Claremore.

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### **ARKANSAS STATE DENTAL ASSOCIATION.**

The Arkansas State Dental Association met in annual session in Little Rock, May 11. The following officers were selected: President, C. C. Sims, Dardanelle; first vice-president, A. L. Pendergrass, Helena; second vice-president, C. G. Farrow, Little Rock; corresponding secretary, W. D. Jacoway, Dardanelle; secretary and treasurer, R. W. Quarles, Van Buren.

**INDIAN TERRITORY DENTAL ASSOCIATION.**

The following officers for the ensuing year were elected: Sam G. Duff, Greenville, president; Pit S. Turner, Belton, first vice president; W. R. Rathborne, Cuero, second vice president. Bush Jones of Dallas was re-elected secretary and treasurer, and Dr. G. Waller Staples of Dallas, member of the executive committee.

Austin was selected as the next meeting place.

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**THE MISSISSIPPI STATE DENTAL ASSOCIATION.**

The Mississippi State Dental Association met at Jackson, Miss., April 19, 20, 21. Officers for the ensuing year were elected as follows: L. G. Nesbit of Aberdeen, president; W. H. Reaben of McComb City, vice-president; J. E. Fraser of Canton, second vice-president; E. N. Bingham of Pontotoc, secretary; L. G. McLean of Fayette, corresponding secretary, and C. C. Crowder of Kosciusko, treasurer.

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**INDIANA DENTAL CHAPTER OF SIGMA DELTA.**

The fifth annual meeting of Xi chapter of the Sigma Delta fraternity of the Indiana Dental College was held at the Claypool Hotel, April 21, seventeen supreme chapter members being present. J. Q. Byram of the Dental College faculty was toastmaster. After an elaborate dinner had been served toasts were responded to as follows:

G. E. Hunt, "The Twelfth Anniversary;" A. E. White, "The Past Year;" F. I. Patterson, "The Coming Year;" Howard Raper, "The Year After;" E. R. Henshaw, "The Country Member;" P. H. Hemsley, "The Ladies;" E. S. Hulley, "One Year Out;" E. C. Van Der Volgen, "Nothing."

At the close of the toast-making, officers for the ensuing year were installed as follows: F. I. Patterson, grand master; Frank Kimberlin, worthy master; O. E. Stiver, scribe; W. D. Hacker, treasurer; H. H. Meier, tyler; F. C. Martindale, senior page; D. B. Landgold, junior page; J. O. Zubrod, historian.

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**XI PSI PHI THETAS HAVE A BANQUET.**

The ninth annual banquet of Xi Psi Phi Theta Chapter of the Indiana Dental College was held April 23 at the Denison Hotel. The twenty-five members present enjoyed an elaborate banquet and

a general good time. W. E. Martin was the toastmaster, and toasts were responded to by C. C. Ogle, T. F. Lewis, H. O. Burgett, Jackson, J. C. Schermerhorn, E. P. Ames and A. Funkhouser. Among the guests present were D. G. Carter of Kenton, Ind.; W. Martin of Danville, Ill.; H. O. Burkett of Martinsville, and H. L. Jennings of Attica.

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**BANKRUPT.**

Edward B. Davis, dentist at Boston, has filed a bankruptcy petition. His liabilities are \$5,270; assets, \$6.39.

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**DELTA SIGMA DELTA.**

The twentieth annual meeting of the Supreme Chapter, Delta Sigma Delta fraternity, will be held Wednesday, August 31, 1904, at St. Louis, Mo. George Edwin Hunt, 131 East Ohio street, Indianapolis, is chairman of the committee on arrangements.



A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### DR EDGAR DENMAN SWAIN.

Colonel Edgar D. Swain died Thursday afternoon, April 28, 1904, as the result of a stroke of paralysis from which he suffered in the morning.

His death was a shock to his friends, who thought him to be enjoying the best of health, but it is believed the exertion of moving to another residence taxed the Colonel's strength and brought on the attack of paralysis while dressing Thursday morning at 6 o'clock. Restoratives were of no avail and he lapsed into unconsciousness, passing peacefully away about 2 o'clock in the afternoon.

Edgar D. Swain was born August 14, 1836, in Westford, Vermont, and came to Illinois in 1859.

We quote from the *Review*—

In the profession of dentistry his usefulness and his honors have been conspicuous. Soon after coming to Chicago to practice (after the close of the war), he identified himself with the group of faithful men who maintained the Chicago Dental Society and the Illinois State Dental Society for thirty years or more, and he filled at various times every position of responsibility or of honor which either of them had to bestow, and his name was scarcely ever absent from their lists of officers or committees. At the time of his death he was chairman of the committee on infractions of the code of ethics of the State Society. He received many years ago the honorary degree of D. D. S. from the Ohio College of Dental Surgery. He helped to organize the Chicago Dental Infirmary, which soon became the Chicago College of Dental Surgery, and served for some years as its secretary and treasurer. He was one of the group of men who in 1891 organized the present Northwestern University Dental School and was seven years dean of its faculty.

Some years ago severe and increasingly frequent attacks of rheu-



matism forced him to retire from practice and he went to Seneca Falls, N. Y., and engaged in out-of-door employment, raising poultry, fruits, etc. This enterprise had to be given up because his wife became a helpless invalid from the effects of a stroke of paralysis, and they moved to Batavia, Ill. During the period of more active out-of-door life Dr. Swain entirely recovered and appeared to regard himself, and was thought by his friends, to be in excellent health. He had resumed the practice of dentistry in Batavia. His sudden death has therefore come with a great shock of surprise and grief to his host of friends. His place in the affections of his comrades and professional associates can never be filled.

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**DR. WM. P. TERRY.**

Dr. William Poole Terry, a dentist and member of the firm of Terry & Terry, with offices at 728 Sixteenth street, Denver, Colo., died in that city April 8.

Dr. Terry was born in Hamburg, Ark., in 1865, and was a graduate of the Baltimore College of Dental Surgery, being in the class of '92. He had practiced in Denver with his brother, C. H. Terry, since 1896.

The remains were taken to Dr. Terry's former home in Shreveport, La., for interment, by Dr. C. H. Terry and wife.

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**DR. CYRUS T. MEAKER.**

Dr. Cyrus T. Meaker died at Carbondale, Pa., May 10.

The news of his death, so sudden and unexpected, was a painful shock to his numerous friends who will be sorely depressed by the sad intelligence. Dr. Meaker was a citizen of force and prestige in Carbondale and will be missed in the circles wherein his influence was exerted. This may be said with the same force of truth when applied to his professional life. He was one of the most active members of the Carbondale Medical Society and also belonged to the County Dental Society, where he was likewise an influence.

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**DR. GEO. C. EIGHME.**

Dr. George Cornelius Eighme, a dentist at Bridgeport, Conn., who was crushed under his automobile, which ran over a bank, died April 19. He was forty years old, a native of Cambria, N. Y., and had lived there about twenty years.

**WILLIAM F. KLOCK.**

William F. Klock, a dentist of Syracuse, N. Y., died Friday in Syracuse under peculiar circumstances. He had been addicted to the use of morphine and the coroner who is investigating the case is uncertain whether death was due to morphine poisoning or to heart disease. Deceased was a son of William H. Klock, a dentist of Little Falls, who died twelve years ago. He was 49 years of age, and besides his widow is survived by two daughters and a brother. William F. Klock was graduated from the Philadelphia Dental College and did not reside in Little Falls afterward.

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**DR. G. D. DENNETT.**

Dr. G. D. Dennett, dentist, died at Portsmouth, N. H., after an illness of a week with typhoid pneumonia. His death was a great shock to the community, for, although he has only been in that city a little over a year, he had made a host of friends, who sincerely mourn his loss. He located there about a year ago and purchased the business of Dr. Samuel F. Ham, who left for California. He had been a dentist at Gloucester, Mass., for a number of years. He was born at Gilmanton, and was 39 years old. He was a graduate of Gilmanton Academy and had been located in Gloucester many years. He leaves a wife and three children.

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**DR. J. M. LIONBERGER.**

Dr. J. M. Lionberger, a dentist of Dallas, Ill., and well known in that city, where he practiced his profession for several years, died April 10, after an illness of several weeks, aged 70 years.



## *Recent Graduates From the Various Dental Colleges*

### **Des Moines College of Dentistry.**

Fred Diekman Staves, Annie Evalyn Mitchell, Harry Harlan Cory, Michael Vincent Maloney, John Wesley Marion, Francis Edward Vincent Lully, Joseph Sharp, Charles Valentine Johnson and Robert Allen Holmes.

### **New Orleans College.**

John W. Abel, T. Sidney Bennett, Geo. L. Bienvenu, Louis S. Bordelon, Harry D. Condick, H. Howell Gates, Arthur C. Hammons, Fernand A. Keller, Bennett J. Lacour, Dominic Major, Don A. Mecklin, Leon J. Priebatsch, Louis J. Redmann, Seaborn Reynolds, Jr., Edward C. Schaefer.

### **Central College of Dentistry, Indianapolis.**

J. E. Davey, Indianapolis; W. T. Linn, Crawfordsville; W. P. Fewell, North Vernon; E. C. Bachfield, Indianapolis; J. G. Robbins, Crawfordsville; W. S. Robbins, Vincennes; Cecil Kierstead, Muncie; D. C. Barnhill, Cording, Ark.; R. C. Lortz, Hope, Ind., and J. E. Hussey, Hoopeston, Ill.

### **Kansas City Dental College.**

W. J. Huggins, president; E. J. Cutshaw, vice president; I. L. Lutz, secretary and treasurer; L. M. Bond, C. H. Brown, E. L. Burton, D. L. Carney, C. E. Cox, E. J. Cutshaw, R. C. Davis, F. J. Finnigan, G. A. Hadley, C. B. Howard, H. E. Holiday, W. J. Huggins, F. Hyatt, E. W. Kerr, I. L. Lutz, E. L. Moore, G. V. McBeth, L. E. Rowley, H. A. Sager, M. D., W. R. Sander, J. J. Settle, A. C. Simmons, J. H. Solecki, H. C. Stokes, E. S. Uhl, C. H. Van Deventer.

### **Dental Department of the Baltimore Dental College.**

John D. Macmillan, New Brunswick; Irwin S. Olliff, Georgia; Henry K. Montell, W. C. Flora, J. Hoffman Wooden and J. Derby Hood, all of Maryland; Irwin C. Botts, Maryland; J. Homer Barre, Earle M. Slate and Lawrence F. Gilleran, Massachusetts; J. A. Coutremarsh, New Hampshire; Samuel Friedman, New York; H. E. F. Tiesing, Connecticut; E. N. Cochran, Maryland; D. Alonzo Long, Pennsylvania; Sherod H. Moody, Alabama; Leon B. Wright, New York; E. A. Lenert, Texas; David O. Pollock, New York; C. C. Marchant, Virginia; Charles L. Ritter, New Jersey; B. E. Smiley, Connecticut, and John T. Hepworth, New York.

**Western Dental College of Kansas City.**

George Aiken, H. L. Aiken, A. L. Billings, L. D. Blachley, J. C. Boyd, F. H. Burgin, A. J. Caison, H. A. Carlock, A. B. Culp, C. M. Davis, Frank Edwards, F. Emley, W. R. Evans, John W. Forney, Maurice Fowler, Clarence Guy, Wilber Gish, I. H. Heidrickson, J. D. Hill, H. H. Hillis, N. S. Hinshaw, Earl Hallowell, Perry Hood, Anton Hrabe, Charles Kraus, T. W. Lind, A. D. Lucas, W. L. McCormick, Gertrude McGill, Charles B. McMahan, H. H. Millard, Ray Mosley, Arthur Musgrave, J. H. Nichols, Edward A. Oliver, S. L. Owings, J. R. Payne, C. B. Parsons, A. N. Schofield, E. B. Sheaff, J. H. Sims, C. R. Smithers, S. D. Soash, Charles Steinmetz, Howard Swan, A. R. Talbott, J. T. Talbott, W. C. Ward, C. H. Weaver, A. G. Wilcox, I. C. Wilson, Gladys Younger.

**The Vanderbilt University of Nashville.**

C. M. Ballenger, Texas; E. C. Bendick, Louisiana; W. L. Bloxom, Alabama; W. P. Bolding, Alabama; T. W. Bond, Alabama; Harley Cawthorn, Florida; A. S. Crigler, Mississippi; R. W. Curry, Florida; C. G. Ducote, Louisiana; E. O. Ellington, Texas; R. E. Foust, Tennessee; R. A. Freeman, Kentucky; M. G. Gholson, Philippine Islands; G. H. Heymann, Tennessee; W. J. Hooker, Indiana; R. P. Hope, Missouri; T. McF. Hudson, Tennessee; W. P. Johnson, Tennessee; D. L. King, Tennessee; E. M. Long, Tennessee; A. W. Miller, Alabama; B. B. O'Bannon, Tennessee; W. L. Phippen, Alabama; A. W. Roberts, Tennessee; R. L. Rogers, Tennessee; D. A. Segriest, Texas; T. F. Simms, Georgia; H. W. Sheperd, Tennessee; W. G. Sternberger, Tennessee; P. W. Trowbridge, Louisiana; L. N. Townsend, Alabama; C. E. Upchurch, Mississippi; W. B. Varnade, Mississippi; C. B. Wallace, Texas; R. B. Warriner, Mississippi; F. C. Wren, Louisiana.

**W. U. P. at Pittsburg**

The members of the class are: Frank H. Magill, Reynold M. Sleppy, Oscar S. Kelly, Claude D. Anderson, George V. Miller, Benjamin K. Crow, Edward C. Shoemaker, Harry W. Lehner, Claude Demorest Anderson, Frank Howard Magill, Earl Garrard Miller, H. Tyson Hartley, Charles Spurgeon Smith, Willington Q. Humbert, J. Ross Garman, Edward C. Shoemaker, Charles Warren O'Hara, Harry William Lehner, Phillip Bertram Benz, John Morris McCue, Clyde Arthur Livingston, Isabelle B. Patton, Reynolds, M. Sleppy, Emil F. Bell, J. Waldo Newmeyer, I. Robert Pershing, James Burns Crooks, Patrick Vincent McFarland, Farland Harry Clyde Werts, Ralph C. King, William Playford Taylor, Herman Ellsworth Krumpe, Raymond L. McKee, Robert S. Brinton, George Vandervert Miller, George S. Robinson, Robert W. Beatty, William R. Donaldson, Earle Haslett Steen, Benjamin K. Crow, Oscar Small Kelly, Gottlieb Klicka, Arthur Gordon Ramsay, Ira Blaine Schoef, Edwin Irving Smalley and John Volney McAlpin.

**INDIANA DENTAL COLLEGE.**

Members of National Association of Dental Faculties and recognized by National Association of Dental Examiners.

Officers, board of trustees—John N. Hurty, M. D., Phar. D., president; George E. Hunt, M. D. D. D. S., secretary; Harry S. Hicks, D. D. S., treasurer.

Selection—Among the Roses.....Stahl  
Tuttle Mandolin Orchestra.

Invocation.....Father Francis Henry Gavisk

Selection—Lead Kindly Light.....Dudley Buck  
Male Quartette.

Soprano Solo—Summer.....Chaminade  
Miss E. Mabelle Wilson.

Address—The Flower of Our Civilization.....R. L. Kelly  
Richmond, Ind. President of Earlham College.

Mandolin Solo—Suwanee River with variations.....Arranged by Gutman  
Miss Ethel Alta Miller.

Mimicry.....M. H. Pritchard, D. D. S.  
Class of 1901.

Presentation of Diplomas.....Dr. J. N. Hurty

Selection—In Old Madrid.....H. Trotere  
Male Quartette.

Soprano Obligato—The Image of the Rose.....G. Reichardt  
Miss Wilson and Quartette.

Selection—Cream City Patrol.....Stahl  
Tuttle Mandolin Orchestra.

Benediction.

Curtain.

Class Roll—Jas. T. Anderson, A. J. Aughinbaugh, C. D. Bachelor, J. E. Barnfield, D. X. Beecher, J. H. Blind, Christian Bos, H. G. Boyd, C. L. Byers, B. F. Chapin, L. S. Chenoweth, W. R. Clickener, Anna H. Cluthe, B. A. Conrad, G. A. Craig, J. K. Cunningham, C. H. Dawson, Fletcher Day, C. O. Dobson, E. Denmyer, Theo. Douglas, C. M. Dowell, E. J. Dykeman, D. F. Ellison, E. L. Fee, D. B. Fenstermaker, Mary F. Fox, Robert Gillis, Roy Harris, Chase Hiatt, H. S. Hickman, C. L. Hine, Louis Icerman, Otis La Grange, O. W. Langston, Huber Lowry, E. P. McClung, E. McElhaney, Geo. F. Masters, O. H. Meyers, F. E. Morton, W. L. Myer, W. R. Newcomer, Norman Norris, E. R. Oberlin, Geo. T. O'Dell, Clifford Ogle, P. J. Pentecost, B. D. Peterson, W. J. Phillips, E. D. Poffenberger, C. A. Priest, S. B. Roth, J. J. Schneider, R. B. Schrock, Margaret Shaw, R. G. Shaw, Jos. P. Shelley, E. B. Simmonds, G. E. Snyder, Jas. W. Stearman, H. W. Stevenson, C. A. Study, R. L. Swindler, H. C. Tate, C. E. Thomson, J. A. Tillett, Floyd Traylor, Leonard Trinkle, E. C. Van Der Volgen, Bert Vangilder, O. A. Kirk, Louis Van Swearingen, A. E. White, N. G. Wills, Ernest Winter, J. C. Wright, O. M. Young.

**Pennsylvania College of Dental Surgery.**

J. W. Akers, Charles M. Austin, Charles F. Bailey, Jesse M. Belber, Samuel Blitstein, George F. Carling, G. H. Clarke, H. E. Corbett, Joseph J. Coltune, Amanda B. Conrad, Thomas J. Connelly, A. L. Cramer, A. R. Curry, C. V. L. Diener, Edith W. Eaton, Elizabeth Edmondson, Charles A. Ely, W. D. Eroh, Harry A. Evans, David Feldman, Joseph Flaherty, Joseph A. Getzow, Adam M. Geesey, Adolph S. Glass, Frank Gordon, Benjamin Haytock, F. L. Henderson, Joseph I. Leet, M. Mandelstam, Albert Mehrer,

Herman J. Meyers, H. G. Molson, O. P. Morgan, S. Leland Moore, I. F. Murphy, James P. O'Rourke, C. W. Outen, Uriah Phillips, S. S. Peck, J. L. Richie, John J. Simpson, W. H. Smith, James S. Sullivan, L. W. Swartz, S. H. Wolk, C. G. Barker, John J. Blackman, H. Buechler, L. F. Folz, Leon C. Gage, H. K. Gerow, L. M. Goodenough, J. S. Hamilton, Louis M. Heckman, John G. Hunter, William Levine, W. L. Lloyd, M. Lorentz, Bernet Cantor, O. E. Day, Amos M. Marsh, Albert Seelig, Warren H. Stevens, Leslie M. Stevens, W. L. Walling, Joseph Whyman, P. H. Cleary, R. N. Cushman, J. D. Maloney, J. H. Powers, J. E. Quigley, Peter Stirling, William F. Peak, Edward Slaton, Mary J. Donovan, Ray D. Gutehus, James W. F. Johnson, J. A. Monteith, Edward Onley, J. Hod Williams, Jose B. Ramerez, E. S. Couttes, D. W. Thomas, E. Jauregin, A. Trigueros, Marciano R. Gomez, Esperanza P. Avila, Isaac Schechter, Charles Jeanneret.

### **Baltimore College of Dental Surgery.**

W. G. Armstrong, Nova Scotia; J. C. Allen, Massachusetts; W. V. Ankeny, Pennsylvania; L. A. D'Argy, Maine; J. A. Askew, Mississippi; F. J. Barclay, Pennsylvania; H. R. Bristol, Vermont; J. A. Bishop, New Jersey; F. E. Beckwith, Nova Scotia; E. C. Blackmore, Virginia; A. J. Bordelon, Louisiana; E. S. Blythe, Canada; J. E. Caplen, Texas; F. J. Corrigan, Connecticut; A. B. Cummins, West Virginia; H. W. Lellinger, Maryland; J. A. Denike, Canada; E. S. Dunning, New Jersey; D. A. Davison, Virginia; J. C. Daughy, Maine; E. N. Eddy, West Virginia; D. C. Finnigan, Vermont; E. R. Fichtner, Pennsylvania; J. B. Fernandez, Porto Rico; W. B. Flynn, Massachusetts; A. D. Golding, Massachusetts; G. F. German, Pennsylvania; L. E. Guy, Virginia; F. A. Gibbons, Massachusetts; T. R. Grady, Prince Edward Island; F. W. Gettier, Maryland; F. A. Grey, Indiana; B. B. Hinman, Connecticut; W. J. Hogan, Connecticut; H. H. Hann, New Jersey; W. J. Jackson, Massachusetts; C. Jensen, Ohio; B. H. Keeler, Connecticut; R. H. Koehler, Texas; F. Keidel, Texas; A. P. Kilbourne, Pennsylvania; G. T. Leighton, Canada; G. W. Loewe, Maryland; T. R. Manakee, Maryland; R. H. McLaughlin, North Carolina; D. J. Monroe, Nova Scotia; F. C. Martin, Massachusetts; T. H. Mitchell, Maine; C. S. McCullum, Virginia; D. F. Morrison, Illinois; C. P. Norris, North Carolina; J. P. A. Noland, Rhode Island; B. L. Neiley, Nova Scotia; T. F. Parks, Nova Scotia; L. Rinsland, Pennsylvania; H. O. Rue, Maryland; J. E. Robillard, Massachusetts; B. A. Rees, West Virginia; H. B. Small, Vermont; T. L. Smith, Alabama; W. T. Sims, Ohio; H. Stoner, New York; J. C. Shamp, Canada; J. M. Somers, Maine; A. K. Thompson, Virginia; L. H. Vermillion, West Virginia; I. R. Wheeler, Maryland, and F. W. Watson, West Virginia.

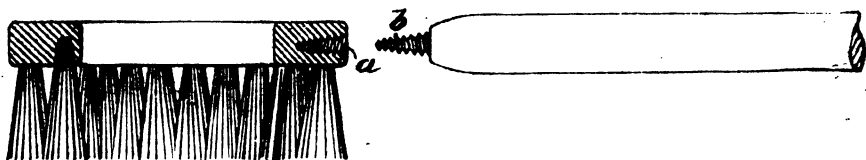


# DENTAL PATENTS



36,878. Dental-Tool Handler. Carl H. Seeger, Manitowoc, Wis. Filed Feb. 17, 1904. Serial No. 193,956. Term of patent 14 years.

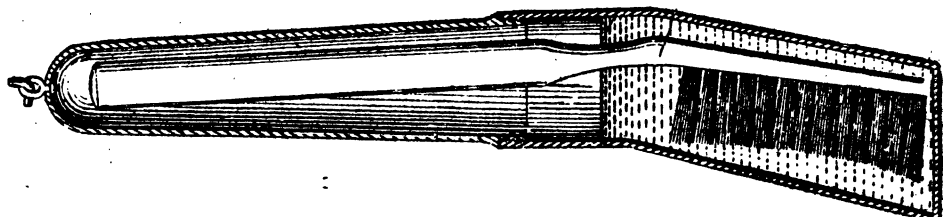
Claim.—1. The ornamental design for a dental-tool handle substantially as herein shown.



758,109. Tooth-Brush. Harry E. Standiford, New York, N. Y. Filed Oct. 1, 1903. Serial No. 175,272. (No model.)

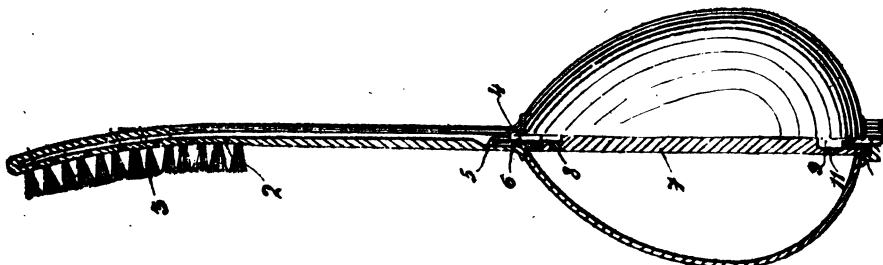
Claim.—1. A tooth-brush made in annular or ring form and having the central unobstructed passageway through it and having its bristles extending parallel with the peripheral face of said ring, substantially as and for the purposes set forth.

Filed April 25, 1903. Serial No. 154,289. (No model.)



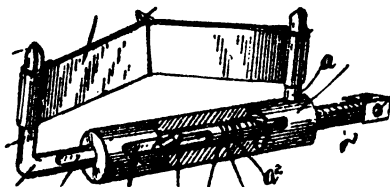
757,885. Antiseptic Tooth-Brush Holder. James A. Cochrane, Cincinnati, Iowa. Filed Aug. 3, 1903. Serial No. 167,987. (No model.)

Claim.—An antiseptic tooth-brush holder, comprising a body vessel adapted to contain a liquid dentifrice and the head of a tooth-brush immersed in the dentifrice, said body vessel being upwardly inclined from its base and having its upper portion formed in a neck which inclines in the opposite direction and a conical tubular cap, adapted to contain and cover the brush-handle and detachably connected to the body vessel, the latter and the cap having coacting devices to form a liquid-tight joint between them, and said cap having a hanger at its upper end, for the purpose set forth.



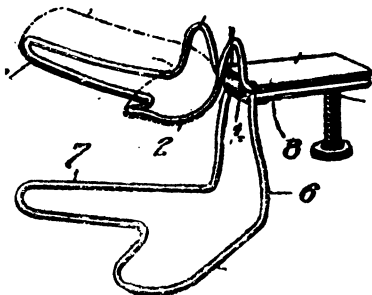
757,907. Tooth-Brush with Washing Device. Friedrich Fritz, Trieste, Austria-Hungary. Filed Jan. 26, 1903. Serial No. 140,521. (No model.)

Claim.—The combination of a bulb, a handle member extending through one side of the bulb and out at the other, a brush arranged at one end of the handle member, said handle member having a bore communicating with the interior of the bulb at one end of said bore and opening into the brush at the other end of said bore, and also having a port where it penetrates the bulb at said other side thereof, and check-valves arranged in said bore and port and opening in the direction of the brush end of the handle, substantially as described.



758,422. Dental-Matrix Retainer. William Crenshaw, Atlanta, Ga.

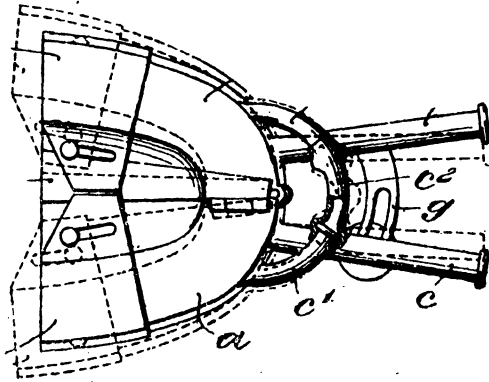
Claim.—1. A combined dental-matrix retainer and aliner comprising two members, one slidable upon the other, each carrying a projecting arm uninclosed at its upper end and free to receive a flexible member, means for forcing the arms apart, a flexible member attached to the arms, and means for retaining the flexible member in engagement with the arms when they are forced apart, substantially as described.





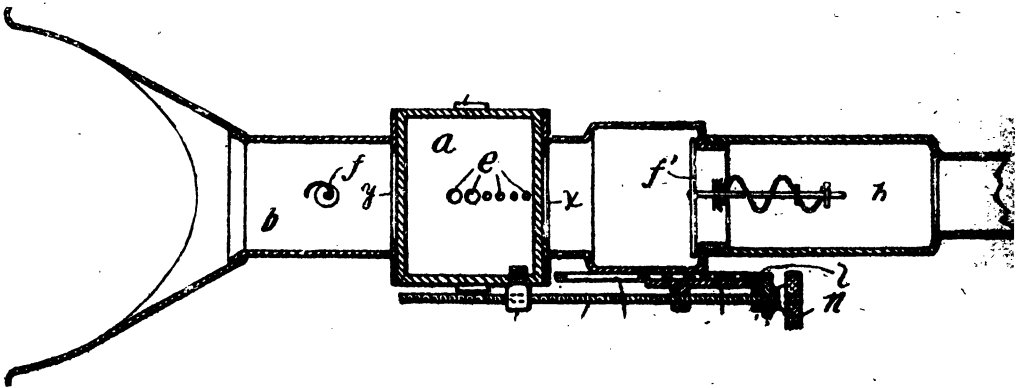
757,133. Holder for Dental Bite-Takers. Edmund B. Marshall, Rome, Ga. Filed Jan. 19, 1904. Serial No. 189,699. (No model.)

Claim.—1. A device of the character specified comprising a trial-plate-supporting frame adapted to enter a patient's mouth, a clamping-frame movably connected with the plate-holding frame and adapted to extend under the patient's chin, and means for positively forcing said frames into clamping engagement with the patient's lower jaw.



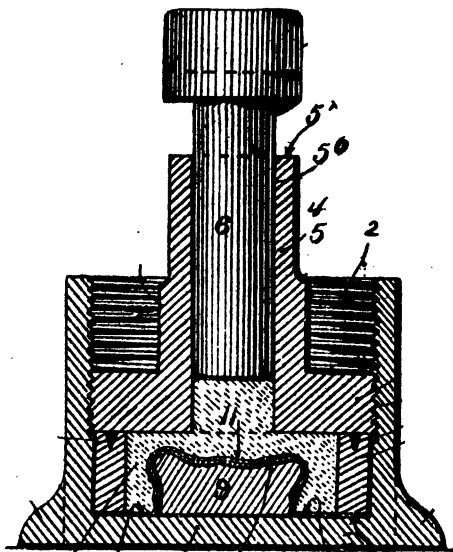
755,670. Dental Impression-Tray. Christos Johannidi, Constantinople, Turkey. Filed Oct. 13, 1903. Serial No. 176,841. (No model.)

Claim.—1. A dental impression-tray, comprising two hinged double-walled or jacketed wings arranged so as to be adapted to diverge, means for extending the free ends of said wings, and means for circulating a cooling fluid through the jacketed wings of said tray.



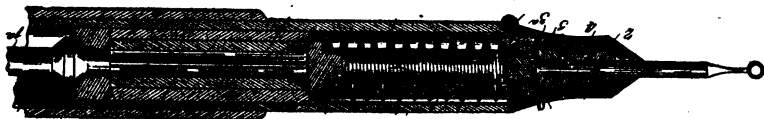
757,013. Anesthetic-Vapor Inhaler. George L. Bennett, Chicago, Ill. Filed July 16, 1903. Serial no. 165,860. (No model.)

Claim.—1. The combination in an inhaler of the rotating valve core provided with a large port and a plurality of small ports varying in diameter, said valve-core adapted to rotate in a cylindrical shell having corresponding inlet and outlet ports, substantially as described.



757,938. Dental Appliance. William T. Lyon, Portland, Ore. Filed July 8, 1903. Serial No. 164,701. (No model.)

Claim.—1. An appliance of the character stated, comprising a shell or cup having an internal screw-threaded bore, said cup adapted to receive the cast and a blank, a yieldable cover for said cast and blank, a ring to fit within the shell or cup and adapted to rest upon the periphery of the yieldable cover to hold the same in place and a threaded plug for closing the said internal bore of the shell adapted to seat upon the ring for holding the same in place, substantially as shown and described.



756,336. Dental Handpiece. Lyter H. Crawford, Dallas, Tex. Filed June 15, 1903. Serial No. 161,419. (No model.)

Claim.—1. In a dental handpiece, the combination, with rigid casing, a nozzle which is flexibly connected therewith, and thus adapted to be flexed laterally, a rotatable driving-shaft, and devices arranged in the nozzle for holding an abrading-tool, of the flexible shaft interposed between and operatively connecting said devices and the driving-shaft, all arranged to co-operate substantially as described.

## PERSONAL AND GENERAL

**Fatally Injured.**—Dr. W. A. Purcell, a dentist formerly of Owensboro, was probably fatally injured by being thrown from a street car in Denver, Colo.

**Married.**—Dr. Theodore H. Rath, a Davenport (Iowa) dentist, was happily married April 11 in Rock Island to Miss Grace Peck, of Chicago. The marriage came as a complete surprise to the numerous friends of Dr. Rath.

**Arrested For Forgery.**—Charged with making and circulating counterfeit half-dollars, Dr. Clarence I. McGill, aged 29, a dentist of Avalon, Pa., was arrested April 14 by the secret service bureau.

**Dentist Wanted.**—A dentist is wanted in Liege, Belgium. Consul Jim McNally has written to the Department of Commerce and Labor to spread the tidings among any who are looking for a chance to get into a new field. The dentist must be up-to-date.

**Fire Caused by Exploding Vulcanizer.**—An exploding vulcanizer in the offices of Dr. J. G. Hall, a Bradner (O.) dentist, caused a \$2,000 fire and endangered the entire village. The vulcanizer was being heated on a gasoline stove, and in exploding perforated the gasoline tank, scattering the flaming liquid over the entire room.

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### A SIDE LIGHT ON THE FINANCIAL ASPECT SHOWING HOW A SOFT ANSWER TURNETH AWAY WRATH BUT DOETH NOT PAY THE RENT.

Dear Doctor Lancaster;

I'm sure you will be in sympathy with me when I tell you that I am just returned from a journey to the land of the D. T's. I know that you sent me "second call" for \$25 and if it had been for \$50 I would have voted you fair. However, I am yet unable to eat and have been squaring myself with nature by means of drink to that degree that I am a wreck.

I shall not die, however. I shall live and pay; and, ultimately with your aid, I shall have a nice mouth and shall pay for it dutiously and fully. No dentist has or shall look at me except yourself. Forsooth, be kind as you can and bear with me yet a few days. I am, I know, a sad dog, but loyal withal, and, in spite of my silent secretiveness, I shall seem good to you at last.

Please wait a week or ten days more, whereupon I shall appear eke with courage for your butcher aide, and eke with moneys for the satisfaction

of my debt. I have had a rare, hard season, all of my own fault, but, I pray thee good and gentle knighte, have a patience that I may yet, of my own accord appear as beseemeth a man of gentle and generous parts.

To which end I salute you and bespeak your gentle favour for a few days.

A gentle knighte, sans monie.

\* \* \* \*

**Bankrupt.** — Charlotte E. Benton, Philadelphia, has filed a petition in bankruptcy in person, without a lawyer. Her known liabilities are \$5,600, and she has nominal assets of \$60,100.

**Reappointed.** — Gov. Frazier has reappointed Drs. J. M. Glenn of Jackson and F. A. Shotwell of Rogersville to succeed themselves as members of the Tennessee State Board of Dental Examiners.

**Injured.** — Dr. Fred B. Kremer, a dentist of Minneapolis, was thrown from his buggy at Minnetonka on Sunday and was carried home unconscious. He suffered no broken bones, but sustained injuries about the head.

**Arrested.** — James Van Nattan, who was practicing dentistry at No. 1075 Broadway, one of the "Painless Parker" offices, and Walter B. Houghteling, who is a dentist employed by his brother, who runs an office at No. 1559 Broadway, were arrested April 22 on complaint of the New York State Dental Association.

**Dentist Injured.** — In crossing State street at Randolph street, Dr. E. P. Binford, a dentist, 286 Wabash avenue, was knocked down and severely injured by a south-bound State street car. The attending physician said Dr. Binford had sustained probably fatal injuries.

**Vulcanizer Explodes.** — While at work in her laboratory, Dr. Lena Watson, a Chicago woman dentist having offices in Hammond, Ind., was seriously injured about the face and hands by an explosion of a vulcanizer. Physicians think she will recover.

**Dr. Kitchen Returns** — Dr. C. A. Kitchen returned from California Tuesday night, where he spent the winter. Dr. Kitchen is at the head of a dental college at Los Angeles and of late years has spent his winters there. Mrs. Kitchen will remain at Los Angeles during the summer, as the climate there is better suited to her constitution than Illinois.

#### **A Disgrace to the Profession.**

In God we trusted,

In Galesburg we busted.

New York Dental Co.

Offices, 349 in Hell.

This note, pinned to the back of a dental chair, together with some other office belongings and a few more or less sad recollections, are now all that remain of the erstwhile New York Dental Company, "with offices all over the United States and dozens in Illinois."

The promoters of the company, W. McGlumphy and George N. Wayman and wife, have left behind them many creditors.



## **PROSTHETIC DENTISTRY.**

**By B. J. Cigrand, B. S., M. S., D. D. S.**  
(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois.)

### **CHAPTER XV.**

Probably the most absorbing topic during the past year at all the dental conventions was the subject of inlays. For some four or five years the porcelain inlay has claimed considerable attention, but of late the gold inlay has come considerably forward. There are at the present still some few practitioners who advocate a filling or a crown, denying the inlay its proper credit. We need not dwell on the general merits of an inlay of gold—granting that good judgment has been used in its location. The manner of construction remains quiet for the present, a matter of personal equation, since nothing in the form of an accepted system has been evolved.

A great variety of methods has been prominently demonstrated at the conventions, and for the most part the various methods bring out excellent ideas. The initial operation of cavity preparation is one which deserves more serious thought. We are yet in an experimental epoch as regards cavity preparation for gold inlays. There are those who say prepare the marginal outlines and general character as for gold; while there are those who claim that the cavity need not be extended so far as in cases of gold. The latter advocates have considerably the better ground in the argument. "Extension for prevention" has been an axiom in operative dentistry and applies to gold and amalgam fillings—more especially the former.

We often extend a cavity considerably beyond the ordinary requirement simply to get strong walls—to resist the blow of the mallet in driving and packing the gold. This is not required in gold inlay work, in fact the inlay can be readily adapted to walls not even pronounced "blow worthy" and give the best of results. The gold inlay has so many merits that emphasis to the pronounced ones seems unnecessary.

In this article we will confine ourselves to the simple occlusal and simple buccal cavity or cavities having complete walls and requiring occlusal restoration or buccal surface restoration. These cup or bowl shaped cavities demand accurate fit of the gold, and unless definite plans of operation are understood failure will eventually result.

The method of producing the matrix is important. The swage method—where a die and counter die of the cavity are made in metal, cement or composition—has its good points, though its shortcomings must not be overlooked. When you swage a piece of gold into a bowl shaped cavity there must of necessity be corrugations, wrinkles and folds, though these can to some extent be burnished away the fibrous character of the gold has been disturbed, and when this swaged cap is subjected to heat the tendency is to distort and act contrary to the rules of warpage.

This fibrous change in the metal does not occur to the practitioners, but careful examination under the lens will so tell you that no matter how carefully you swage the matrix to fit the cavity when this gold, which has been changed in its fibrous relation or its grain characterization and thence submitted to heat, a variation of shape is observed. And when this cap is flown full of gold the shrinkage of the solder still adds to the tendency to further alter the original fit. Regardless of the investment compound or your known ability to control gold, the heat affects the general outlines of this swaged matrix. What is true of the gold matrix is likewise true of the platinum matrix. Just as long as we practice in variance with the underlying principles of chemistry and metallurgy we can anticipate difficulties of misfit and abortive results. The criticism may seem to many as too severe but diligent investigation along this line with special care to have the chemistry of the case constantly in mind will disclose a few items deserving of our notice. It matters not what system or method of swaging you employ these variations will be found and if you can overcome this physical alteration, well and good. But up to this writing the matter has not been brought to the writer's attention. Hence, a process of producing the matrix is paramount. There can be no division of thought on the essential of having the matrix fit the cavity and its subsequent treatment to leave it unchanged.

Now the method I recently demonstrated for making a matrix so it will remain just as it was when taken from the cavity is simply as

follows: After having prepared the simple occlusal cavity with the walls slightly verging toward the center of the cavity, get the wall measurement by using a thin strip of copper band or a fine copper wire; then cut the gold to this required length, and after soldering same you have a gold band which has the actual wall space of the cavity; then bend the gold band to the required outlines of the cavity and possibly the gold will fit a trifle loose, remove the gold and enlarge, re-insert the gold and with burnishers hold the gold against the walls of the cavity and accurately fit the gold to the margins of the cavity. Then place sandarach on the occlusal surface of the tooth, lay a piece of pure gold over the occlusal surface, containing the gold-lined cavity, have the patient occlude the teeth and by this simple means get the antagonism of the opposing teeth. Now with sharp hoe mark the surface of the pure gold as it rests above the gold lining of the cavity. Remove pure gold and matrix and solder together. Add solder on the concave or counter-sunk side and then turn off the appended borders of the pure gold. You now have a gold inlay in the form of capsule with the floor of the capsule acting as the occlusal surface. By this method you have also added surface for your cement, since it can attach itself to both the external and internal surfaces of the matrix.

By the old method we swage the gold and then fill the capsule with solder and filing, adding gold and labor and destroying the anchorage and durability of the inlay.

This method completely reverses the method of constructing the gold inlay and assures against the possibility of alterations under the influence of heat. The principle is simply this: A gold band having fibers of grain encircling the metal is soldered upon a separate piece of gold having the gold fibers in a longitudinal direction, and the heat does not disarrange the fibers.

With a few large burnishers and a meager supply of patience definite and satisfactory results can be had.

(To be continued.)



**PORCELAIN CROWNS.****(By J. M. Thompson, D. D. S.)****CHAPTER VIII.**

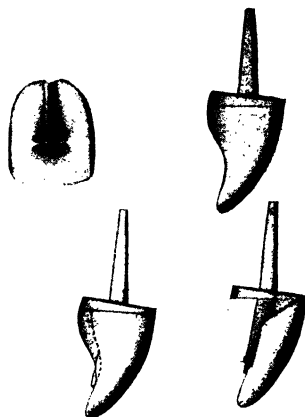
The truly artistic dentist who has manipulative ability to carry out desires born of high ideals, is one of the most independent persons on earth. The assertion that "true art disguises art" applies to dental as well as other work, where beautiful, harmonious results are needed. There is not a manufacturer in existence who can produce just what we must have for our most particular cases, and while we are greatly indebted to them for many beautiful aids to success, unless we can remodel and adapt the materials furnished to meet the requirements of our work, we fall short of accomplishing that which we so much desire. We may want a tooth of a certain shade and succeed in getting one that is as nearly correct as any piece of porcelain can be; but, when we try it for shape and size, we are at sea because it does not resemble in any way the ones we wish to match. It is here that one's eye for form is put to the test, and owing to the fact it is possible to restore the finely glazed surface of any porcelain tooth made, they may be ground without fear of permanently marring their beauty. On the other hand, where we find the correct shape and color is wanting, it is quite within the range of possibilities to produce what is needed. This, however, is worthy of a chapter alone and has been ably written upon by others.

Anyone who has had the pleasure of watching Dr. Stone (who is at present demonstrating for S. S. White & Co.) carve teeth, has certainly been highly instructed, as well as delightfully entertained. Following the methods shown by this gentleman, one is made independent of everything in the form of ready made crowns or facings, and a new era opens for the man who can adapt his teachings to his office life.

While the two crowns mentioned in the preceding chapters are very fine in many respects, many operators prefer to use a facing in connection with the construction of crowns. Perhaps there is nothing in dentistry that affords a greater range of possibilities than the judicious use of work of this kind, i. e., the utilization



of the teeth such as are used upon vulcanite plates or those facings used in ordinary crown and bridge work. Drawing No. 1 represents a vulcanite tooth fitted to the post and cap, ready for the porcelain to be added. In many cases the regular plate tooth does not possess the proper artistic attributes, and in such instances the other teeth are just what is needed.



In making a crown as shown in accompanying drawings, it is best to fit the post to the root and then grind the facing as desired, adjusting it to the post before the cap is in position. By so doing the correct placing of the parts is accomplished and a lot of unnecessary fitting after the cap and pin are united is done away with. After this union has been made the facing may be returned to its place and the pins bent around the post in a way that will hold it securely. If this is properly done, there is hardly any necessity of soldering. It will be noticed that the facing has been ground to receive the post between the pins. While this is not always necessary whenever it is done, the post should fit as perfectly as possible.

Many operators claim that unless the pins are soldered to the post that during the fusing of the new porcelain the facing is apt to be drawn out of position. This is a fact, but there are many places where the use of solder is impossible owing to the necessity of grinding the pins out entirely. Where this procedure is indicated the task of holding the facing in position until the first baking is put in place and fused is somewhat difficult. In the use of low fusing materials this is not much of a problem, as an investment that will not adhere to the surface of the tooth is readily found; but the use of the

higher grades of body increases our troubles in this respect very much.

It is almost impossible to find an investment material which will not etch the facing and in many cases spoil the work entirely, consequently we are forced to resort to other methods to accomplish the desired results. With the use of high-fusing body, it is possible to hold the facing in place with the fingers of one hand while the porcelain is added and this can be so thoroughly dried that it may be handled without fear of disturbing its position while placing it in the furnace. This is, of course, permissible only in working upon the model and the tooth should be placed a trifle out of line at the cutting edge so that the shrinkage may be allowed for. After a little practice it is possible to carve the inner cusp of bicuspid and the backs of incisors or cuspids in a manner that does away with the necessity of more than one fusing. To the busy man this knowledge is of great value, as it saves nearly half the time in the use of the furnace.

Drawing No. 2 shows the partly completed crown with the dotted line marking the general appearance after the first baking has been done. It will be noticed that the post is considerably longer than it should be and is at this time ground flush with the surface of the porcelain already in place. When this is done the second layer entirely covers the remains of the pins, also the end of the post, to a sufficient depth to hide them completely.

Drawing No. 3 represents the completed crown with cap, which for lateral incisors is without an equal. The same general principles governing the construction of this crown also apply to the one wherein the plain disk and post are used, as described in the preceding chapters. Time and space do not permit descriptions of the many ways which open to the thoughtful worker, and it is the wish of the writer that everyone (old or young) may become acquainted with them through actual experience.

(To be continued.)



**OPERATIVE DENTISTRY.**

(By R. B. Tullar, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

**CHAPTER XV.****FILLING MATERIAL.**

The materials which may be satisfactorily used for filling teeth are limited and particularly such as may be used for so-called permanent work. Permanency, however, depends not alone on the material used but upon the perfection with which the work is done. No matter how indestructible the filling material may be, if it is not adaptable and adapted to the walls of the cavity so as to hermetically seal it and exclude the fluids of the mouth absolutely, there can be no permanency to the work. The philosophy of filling teeth to stop the ravages of decay, is, that in clearing the cavity of the broken down and affected tooth substance and sealing it with a filling we remove and exclude the cause of decay from that particular lesion; and that philosophy must be carried out in fact, if we expect to be successful in our efforts.

Plastic materials were probably first employed in stopping the cavities in teeth and have always been more or less used, but with the exception of amalgams none are considered in the light of permanent fillings. Under certain favorable conditions of mixing, crystallizing and placing of oxy-phosphate cements, and in mouths maintaining certain favorable conditions after such fillings have been inserted, a degree of permanency has sometimes been secured far beyond the average life and expectancy of such material. Temperature, too, plays an important part in the mixing of cements to get best results. In the light of experience cement fillings are classed as temporary; and yet these hydraulic cements in dentistry are of inestimable value in various ways, and there is a hope that some day a cement will be found or we will know how to handle what we have in the exact mixing and manipulation every time to produce something much more permanent.

A translucent or a transparent cement that will harden quickly and withstand the action of the fluids of the mouth is very much desired in dentistry.

A very enduring and quick setting cement is termed an oxy-phosphate of copper and is a wonderfully good thing, its jet black color being its only objection. But black as it is, it has wonderful preservative qualities and is, except in color, most excellent for the temporary teeth of children.

Among the various gums there is nothing known of any account, except gutta-percha, that may be used for filling teeth. Like oxy-phosphate cement, gutta-percha has a hundred and one uses in dentistry, and we could not well do without it. When warmed it may be pressed into a cavity so as to absolutely seal it tight and hence makes an ideal filling material in its adaptability to the tooth walls; but while very tough and reasonably hard it deteriorates more or less rapidly in the fluids of the mouth. It is naturally a dark gum and to lighten it up for dental uses it is done at the expense of its resisting qualities to the action of the saliva, and to masticating wear and tear for any great length of time. By the action of the fluids in the mouth gutta-percha rots so that its toughness is gone and it crumbles; and yet for all that, fillings on buccal surfaces have stood well, protecting a cavity for years. It is an easy matter to renew them if the need is indicated.

The only plastic rated as permanent at all is amalgam, and its value to the rank and file of humanity can hardly be estimated; for if it were not for amalgam thousands and thousands of teeth would be lost with consequent suffering due to a crippled masticatory apparatus that now are saved for people with not too much money.

When the writer was a boy he often saw his father, who was a dentist, make his amalgam from the filings of a silver coin. It was a common practice with dentists of that day. Such an amalgam turns black, but its durability in some cases is a marvel to us to-day when we know the exacting requirements of proportions of several metals to make an unshrinking and non-expanding amalgam such as we must have now with which to do successful work. But with all the imperfections of coin silver filings and mercury, I have seen some of those fillings that have remained intact for 40, 50 and 60 years.

The amalgams of to-day are exact scientific products and are mainly composed of pure tin and silver with the addition, in some cases of other metals in small proportions to temper and strike the happy medium desired. The amalgams of to-day never turn black,

but remain (with a little care on the part of the patient) a silvery white.

The value of amalgam as a filling material has been discussed pro and con for years and there are operators who claim to have eliminated it from their list of filling material, but until something better is found to take its place, amalgam will always be used more or less. Owing to its ease of insertion it is liable to abuse on the part of such operators as are indifferent to everything but the quick money. Slip-shod methods may be employed by slip-shod men, but a conscientious operator will be as careful in manipulating, molding and finishing amalgam as anything else. It is susceptible to as fine contouring and finish as gold, if one will take the pains, though the final finishing may have to be deferred until another visit if a fine polish is desired.

The way to finish at the time of insertion is to wipe with cotton or spunk held in the pliers. A skillful hand can make very good contours, the finish having a sort of frosted appearance. In wiping an amalgam filling care must be taken to not leave surplus overlapping margins or filling in fissures on occlusal surfaces to crumble away afterward leaving a rough margin at the break. A carefully contoured amalgam filling highly finished as some operators do them is a thing of beauty as well as highly finished gold.

Teeth that are filled, no matter with what, should always have especial care on the part of the patient and they should be instructed accordingly.

The artistic contouring and finish of fillings whether they be amalgam or gold redounds more to the credit of the dentist than most anything else he may do, since patients will delight to talk of and show work that pleases the eye, while an equally good filling so far as preservation of the tooth is concerned, if left crude and inartistic will not be shown or if shown it will be to the discredit of the operator. Amalgam fillings in particular are more often slighted than gold when they can be made to look like polished silver, a color that is more in harmony with the tooth color than gold and hence truly more artistic in many instances. It pays to turn out finished and artistic work and a dentist who does not realize that stands in his own light and loses opportunities to forward his own interests in commendable ways.

In passing it is proper to speak of copper amalgam which at one time was extensively used and talked about as a preserver of teeth

that nothing else seemed adapted to and its excessively soft and salve consistency certainly enabled one to do with it what could not be done with ordinary amalgam, and it has preserving qualities not found in other amalgams. It has fallen, however, into disfavor and is rarely heard of or discussed at this date. Copper amalgam turned as black as a coal usually but that was not so much of an objection in unexposed positions where it was mostly used. Oxyphosphate of copper cement is a good substitute.

Porcelain fillings or inlays have come into use within comparatively recent times. It is an ideal filling material and will be discussed later on.

The next paper will take up the discussion of gold and tin separately and in conjunction.

(To be continued.)



## DENTAL THERAPEUTICS.

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.)

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### CHAPTER XV.

Under the heading of heavy metals and their pharmaceutical preparations it is necessary to consider briefly the pharmacological action of copper. This metal being endowed as it is with the general characteristic physical and chemical properties as that of the metals previously described, it is only necessary to say that the soluble salts will precipitate proteids from solutions, consequently acting on mucous surfaces in very much the same way as other compounds of the heavy metals. When applied to the mucous membrane it acts as an energetic astringent, and when any considerable amount is applied it manifests considerable irritating properties and is somewhat corrosive under ordinary circumstances. These two last named properties are not so pronounced as that of some of the other heavy metals, more especially mercury.

Copper has always been limited to a very narrow limitation as a medicinal agent. The copper salt hereafter to be described has a metallic and astringent taste, and if any considerable amount is administered nausea, salivation and vomiting is the result. When the latter condition is produced to any extent the salts of the metal is carried out of the stomach and thus prevents any farther effects. However, if vomiting does not act as a means of elimination, corrosion of the walls of the stomach and intestines takes place, followed by vomiting and purging; and the presence of copper is identified by the bluish or greenish tint that is given to the contents of the vomited matter or the stools. One of the characteristics symptoms is severe pain in the abdomen and if the conditions are severe and prolonged collapse, followed by a weak pulse with a slow respiration, dull headache, giddiness, delirium with a semi-unconscious state, followed by coma and if this condition continues for any length of time convulsive movements of the limbs followed by paralysis. All of these symptoms may follow acute poisoning and a rapid termination in death.

It is a much disputed question at the present time as to whether there actually exists a so-called chronic poisoning or not, but when

it is considered that copper is used to a great extent to preserve the color of canned peas and is frequently used in bread, this is an important point. It has been observed that copper and brass workers are subjects of gastro-intestinal catarrh, also colic and sometimes they show manifestations of local or peripheral paralysis. In such cases the hair will frequently take on a greenish tint and the green line shown on the teeth just at the margin of the gum is spoken of as the copper line. According to the best authorities these markings are due to the dust depositing itself on the skin, hair and teeth instead of the metal being excreted through the structure of the glandular tissue.

The symptoms and conditions above described is extremely rare, so rare in fact that the majority of the best observers are of the opinion that the above symptoms are due to other poisonous substance that is so commonly associated with copper, namely, lead and arsenic. As a rule copper and brass workers are robust and healthy specimens. I might say in this connection that a few years ago it was my privilege to examine the mouths of a number of brass workers and to examine carefully the medical report that was made by the superintending physician, and much to my astonishment this class of men were extremely healthy and dental organs were in a far more healthy condition than any other class of workmen of like character. Out of over 200 mouths there was less than  $1\frac{1}{2}$  per cent had pyorrhea, dental caries were far less frequent apparently than in any class of workmen that I had met who gave their mouths so little personal attention.

Copper has been taken for long periods in the form of the soluble salts without producing any special symptoms than those above described, namely gastro-intestinal catarrh. Experiments have been conducted on lower animals by putting large doses of copper in their food, and in this form it would be taken for months without producing any manifestations whatever. It is a well-known fact that copper exists in the tissues of both animal and man as a normal constituent, but as yet no one has given any explanation as to what its functions may be. It must, however, be borne in mind the case of copper, as is so with any other chemical or medicinal agent, that there are many persons who are extremely susceptible to its action, while others may take it for a long time without producing any harmful effects.

There is no question but what copper may be absorbed from the



stomach and intestines when the metallic salt has been administered or taken in any considerable quantity. The observations of Baum and Seegler were to the effect that when small doses were given larger quantities are absorbed than if large doses are administered, in other words, when large doses are administered active absorption is lessened. Therefore, to obtain the absorption of copper the salts should be administered in small doses. It will, however, pass through mucous surfaces other than those of the stomach and intestine. It will also be taken into the circulation from wounded surfaces. Kobert and others found that copper has an affinity for the haemoglobin of the blood and enters into a chemical combination when coming in contact with this substance. This chemical compound has been called by the above named author as cuprehaemol, and according to various observers the metal immediately leaves the serous portion of the blood and combines rapidly with the red blood corpuscles. When any considerable quantity of it is taken by the stomach the larger part of it is deposited in the liver, and traces can also be found in the spleen, kidney and thyroid gland. It has also been found as an excretory product in the urine, bile and saliva. Traces of it has also been found in the mother's milk, and it is stated upon good authority that it will pass from the mother to the foetus in utero. An explanation that is frequently given for the reason that it requires such a long time to produce the poisonous symptoms when administered by the mouth is because it is slowly absorbed and is rapidly withdrawn from the blood by the liver.

The therapeutic use of copper internally is confined almost exclusively to copper sulphate and this only as an emetic. When administered in about one per cent solution it acts promptly and the individual is quite free from the depressed condition that frequently follows when other like emetics are administered. Perhaps one of the most valuable remedies in case of acute phosphorous poisoning is that of the salts of copper, it not only causes rapid evacuation of the stomach but the copper combines with the phosphorous and prevents its rapid absorption.

The external use of phosphate of copper has been confined almost entirely to ulcers and chronic wounds. For such purposes a one per cent solution is usually used. As we have previously said, copper seems to exist as a normal element in the tissues of man and the lower animals, on the other hand copper is to be found in the blood of the invertebrates and seems to play somewhat the same part in

the blood of these animals as does the iron in the higher forms of animal life. It exists as one of the pigments in the feathers of birds. If oysters are placed in water rich in copper they will take up large quantities of the metal without producing any serious consequences. Horticulturists have used with considerable benefit certain copper compounds for sprinkling on grapevines, which results in two very excellent ways, producing more luxurious growth in leaves and vines and causing the destruction of parasitic growths that will act as harmful agents. Very low forms of plant life is sometimes easily affected by the most delicate trace placed in the water in which they live. Nægeli has made the statement that one thousand millionth part of copper placed in water is sufficient to destroy the life of the algae. It has been a common custom to spray grapevines, potatoes, apples and other plants with copper to destroy the growth of parasites that so frequently destroy great crops. The yeast plant will not grow when one-twentieth of one per cent is added to the solution, while on the other hand the penicillium is acted upon but very little by the copper compounds. Water distilled in copper vessels will have a considerable retarding influence on many of the lower forms of life. Bucholtz states that a one per cent solution of sulphate of copper is sufficient to arrest the growth of bacteria. There is some reason to question this statement if it be applied to all forms of bacteria, for bacteria is like all forms of life, they vary considerably in their action towards various agents. On the other hand by reviewing carefully the observations and experiments on copper and its application to all forms of life, it is readily seen that in some instances it has an active destructive effect upon living organisms, whilst on others it increases the protoplasmic activity to the extent that it is considered of value to the growth and proliferation of certain forms of particular life. This seems to be specially true to the chloryphyll bearing vegetable kingdom.

My personal experiments and observation has been to the effect that copper has a very astringent effect upon the protozoa forms of life like the amoeba when placed in weak solutions, but does not under ordinary circumstances tend to destroy the life function of the animal, while in the case of bacteria it has a more or less destructive influence, especially on certain forms such for instance as the proteus vulgaris bacilli and many of the saprophytic germs. The strictly speaking pathogenic germ such as the anthrax diphtheritic and typhoid bacillus all have rather resistant action against the copper

salts, in other words, they are more immune than some of the saprophytic or the higher fungi.

These observations and investigations led me to the use of certain preparations of copper for the treatment of certain pathological lesions that are more or less common in the oral cavity. The use of this agent for treating pyorrhea alveolaris is so far as I know not very generally used, but in this connection I believe it has a useful place when combined in the form of a saturated solution in organic acids, such for instance as lactic acid. This is accomplished by taking lactic acid C. P. and place it in the quantity of copper sulphate sufficient to make a saturated solution. The treatment is to carry this solution well down into the pyorrhea pockets, the technique of which I propose to describe later on.

Under the heading of heavy metals there is another metal that comes in very close relation, from a pharmacological standpoint, to that of copper. The previous descriptions of copper in its general action in the body is very much the same as given in connection with zinc. The soluble salts of zinc form insoluble compounds with proteid substance, possesses an astringent action and in sufficient quantities it produces irritation and corrosion. Like copper the sulphate is the one usually chosen for medicinal purposes. The chloride of zinc is of more importance than the chloride of copper for the reason that it is more corrosive. Zinc sulphate is very much more astringent than the chloride. Sulphate of zinc in small doses causes nausea and vomiting, and if the dose be increased the same general characteristic symptoms as those mentioned in connection with copper compound are produced. Carbonates and oxides of zinc are but slightly soluble, consequently give but little inconvenience when taken into the stomach; however, if the administration is prolonged for any great length of time such troubles as dyspepsia and constipation results owing to the astringent properties.

There frequently appears an ague among brass foundry workers which is accompanied with weakness and painful sensations throughout the various parts of the body, increase of pulse, the chest having a feeling of soreness, accompanied with coughing and headache. The patient, if permitted, will pass into a sleep, and when they awake they are usually free from the disagreeable sensation that they had when they passed into this sleep.

This condition above described is supposed to be due to the fumes of zinc that are liberated during the process of casting. The ques-

tion has frequently arisen as to whether this is due to the zinc or whether it is due to the impurities, such as arsenic and lead.

The action in general of zinc seems principally to be upon the nervous system and voluntary muscular fibers, causing congestion and irritation of the mucous surfaces of the stomach and intestines, accompanied with an inflammatory condition of the kidneys. The method of using the compounds of zinc is most commonly that of hypodermic or intravenous injection. When these methods are used the double salts of zinc are the ones most commonly used, for the simple reason that when the ordinary salts are injected into the circulation it causes a rapid precipitation of the proteid of the blood, which results very disastrously.

The salts of zinc seem to have the same affinity for the haemoglobin as that of copper, forming a compound named by Kobert and Grahe as zinc-haemol. And what was said in regard to the effects of copper on the haemoglobin of the blood may also be said of zinc—it is found to have no special beneficial effects. Zinc is excreted by the stomach and intestines, the salts of this metal being less active in their physical effects than that of the salts of copper.

The local application of the salts of zinc have been used very much in the same way as that of copper, and for treatment of certain lesions of the oral cavity its effects may be said to be in the organic acids very similar to that of copper.

(To be continued.)



# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

(By R. B. Tuller.)

### No. 10.

Poetry.

Poetry in dentistry.

Not so very much, may be, but some.

You never found much, to be sure, in cleaning teeth; nor extracting them.

Nor in operating for a touchy patient.

Nor in scraping and finishing rubber plates.

But there is poetry in dentistry.

I've seen it and been charmed by it in an amalgam filling.

Not in a botchy black ill-shaped thing; but in one correctly molded, contoured and finished.

Uncle George Cushing—bless his memory—used to take as much pride in giving fine outlines and finish to an amalgam filling as to a gold one.

And they were poems, every one.

There is no poetry in the operation of cleaning teeth; but there is in the beauty and resplendent pearl-like appearance of properly cleaned teeth.

There is no poetry in a false set of teeth grinning at you from your laboratory shelf.

And mightily little in them, sometimes, grinning at you from people's mouths.

But there is poetry in such teeth when in place they bear the mark of an artist and simulate God's handiwork so nearly that their artificiality cannot be detected in any casual observation.

Take false teeth, however, as they average and there is hardly that in them that would stir one's soul to poetic muse, or inspire an epic in praise of the "artist."

There is poetry in the click of Spanish castinets keeping rhythmic time to the music of the guitar "In Old Madrid," but, say—well,

let's pass along to other things than the average false teeth. Any attempt to fit poetry to most false teeth would, perforce, be in the nature of satire or *biting* sarcasm.

(This is where I throw up my arm to ward off any old shoes and things.)

Neither is there much poetry in a set of horridly irregular natural teeth in anyone's mouth, however beautiful they may otherwise be. And the good Lord must have some fits of meager prose when He's about the business of arranging the teeth of some people, if He has anything at all to do with it. I suspect it is man—the iniquities of the father visited upon the children unto the third and fourth generation.

But let me tell you: I've seen a grand poem of a face, beautiful in every line and feature except the decidedly bad composition and configuration about the mouth—bad grammar, so to speak—and amplified at even parting of the lips into what might be termed a gnashing deformity.

And then I've seen the same face after a master of the art of orthodontia had touched it with the magic of his marvelous skill and behold, a face replete in the poetry of perfection.

The same sort of transformation lends its kindly charm to the artistic skill and deft manipulation of the general practitioner when defects, glaring and repulsive are overcome by restorations that are nothing less than poetic gems, bound often into an elaborate volume. Not necessarily an *unabridged* volume, but the laity don't always realize that; they see only the beauty—the poetry.

Now, where is the poetry in the facial *embonpoint* due to an abscessed tooth? There are suggestions perhaps—suggestions of Dante's Inferno, but how often have you been called upon to administer your curative skill to a face that resembles Dent's toothache caricature in the papers (and as likely as not brought on by Dent's toothache gum stuffed into an offending molar), and with your know-how ability reduce that gnome-like countenance to a condition of tranquillity and health that is the very foundation of poetry?

There is poetry in commonplace things as much as in the more exalted ones, if one knows how to find it and read it, but I don't know that I ever found any in rubber dam; or if I have it was stretching a point to so view it. It is as a rule nothing more or less than a profane piece of prose with altogether too much boiled oil or glue in it to stretch very much of a point.

Dam to be worth a dam must be of pure rubber. There is some poetry in purity.

There is poetry in the experience of having nice appreciative patients who pay their bills promptly and thank you kindly for serving them. How I do love poetry of this meter—and yet, and yet my heart hungereth in vain to a great extent. There is some blank verse now and then that I don't care much for, and ninety-nine per cent prose.

But say, if you want to revel in a superlative order of poetry tie up to the ceramic art.

An artist is a poet, and a poet is an artist. It takes this combination to make correct porcelain prosthetics, and especially porcelain inlays.

That insignificant little bit of broken glass or china, as it appears in the fingers after stripping off the platinum, has not much of rhyme, rhythm or metric composition in its configuration; nor is it suggestive of the least value in the world; but set in its place with perfect adaptation, shading, blending and contour it is a poem expressive of the very highest ideals in dentistry.

O, well, if they come out later they are neither in-lays nor poems. Blank verse, possibly; or a case of more truth than poetry.

I think I've heard them called blank, blankety blank, blank, or something like that. That is the way it sounded to me as quoted by a fellow dentist—and possibly the patient as well.

You know how some of the popular lyrics will sometimes run in your head and you will often be humming and humming them in a half unconscious way? Well, I now and then, occasionally, not very often, sometimes find myself humming something in this blankety blank verse about my inlay work, and yet I'd rather make inlays than eat.

I have sometimes, even, caught myself composing poetry (doggerel it may be) about inlays—the other fellow's, not mine.

The following is submitted (with apologies) about the other fellow, and may explain why some dentists have no poetry in their souls; and why they call inlay work a fleeting and unmeritorious fad.

A dentist who lives in this town,  
Sought to win for himself some renown,  
So he made an inlay,  
But the thing wouldn't stay,  
And his patient came back with a frown.

'Twas explained that it must have got wet,  
'Fore the cement was fairly well set.  
As Doc mixed up some more,  
The inlay fell on the floor,  
And on all fours he is hunting it yet.

Those poetically inclined may add other stanzas, and it all goes to prove that there is poetry in dentistry, even though you have a tendency to look down in the mouth as you try to comprehend it and work it out.

### DENTAL SOCIETIES AND THE CODE OF ETHICS.

(By Emory A. Bryant, D. D. S.)

Read before the union meeting, Maryland and District of Columbia dental societies, Baltimore, May 21, 1903.

The subject of this paper has been a matter of interest to the writer for some years, and thinking it might also interest others, I selected this as an opportune time for a discussion upon the subject. I may have erroneous ideas in regard to the purposes of dental societies as well as the code of ethics, which is the base from which the former is builded, and if I am wrong, then there is no better time than the present in which to be set right. If I criticize, it is not in a spirit of enmity, but rather of interest in its welfare. If I laud, it is not in exultation as a member, but pride in its success.

There is an old saying "spare the rod, and spoil the child," which might be applied to any society by parody. Fail to criticize, and man runs riot. Criticism is the safety valve of all human organization, when its sting is tempered by principle. I have a principle to evolve to-night, one that I think the great majority of my hearers will agree with me, and that is "the greatest good to the greatest number."

Dr. C. A. Brackett of Newport, says "What people say to us interests us, amuses us, instructs us, raises our spirits, stimulates our ambition, rouses our courage, moderates our enthusiasm, excites our anger, inspires and cultivates or unmakes friendship, makes us miserable or fills us with happiness. What people say of us makes or mars that good name which is rather to be chosen than great riches." He refers to the relations of the dentist to his patient, and I would apply it to the relations of the dentist to the dentist.

When I look over the lists of practicing dentists in the cities and in the states, and then refer to the lists of members of the socie-



ties and see the great disparity in the numbers between them, I ask myself the question, why? Can there be any logical reason for the fact that less than ten per cent of the legal practitioners of dentistry are members of the dental societies of their respective sections? If there can be no reason given as to why they are not members, is there no reason that can be given why they should be?

In a pamphlet recently distributed by an association of dental supply dealers, the cold proposition was made, "that as less than ten per cent of dentists were members of dental societies or attended the meetings of the same, that it was their duty to organize exhibitions apart from the societies and reach out for the ninety per cent, that instead of waiting for a demand for goods, to create a demand, and that this could only be done by cultivating the great body of non-society men, who in reality were their main support, and not be dictated to by the small minority, the society members." It was the facts and figures of that pamphlet that opened my eyes to the present conditions, and set me thinking if there was no remedy for the evil, for evil it certainly must be to have nine-tenths of our professional brothers outside and not inside of the organizations that constitute the sole means of united effort for the benefit of all.

That united effort is effective is plainly shown in the fact of legislation obtained in the different states by organized effort of less than ten per cent of those interested, and generally by the efforts of less than ten per cent of that ten per cent, the latter obtaining prestige through the name and supposition that the organization he represents, likewise represents the whole body of his profession.

When I call your attention to the fact of the few posing as the representative of the many, I do not do so in a disparaging comparison, but to call more directly to your mind the evident facts and benefits of organization, and that I am not drawing upon my imagination, by referring you to the rolls of your societies showing upon their face that the attendance averages but a small margin over ten per cent for all regular meetings. These "regulars" are composed as a rule, of those who are officers, or hope to be, those who are really interested in society work and its details and success, or in the politics of the running mechanism, its results and its honors. Added to which occasionally may be those interested in a particular paper or subject of discussion and a chance to discuss, the latter being a very apparent drawing card in particular individuals judging from the minutes of consecutive meetings, and similar repetition

of familiar names. Upon the shoulders of these "regulars" the success or failure of the society depends, as the other ninety per cent appear to take no interest whatever, pay their dues, attend banquets and the main yearly meeting where the clinics and social features, as well as the exhibits of the dental supply companies, are the predominating reason of their appearance, ignoring almost entirely the regular meetings in which the political and detail features of the society are carried on. As the minority are in control, accept the honors and prestige of office, they must also of necessity accept the responsibility of the positions they assume. Upon them depends whether the society is to become a representative body of the profession in fact, by having the great majority upon its roster, or in fancy, and be merely a mutual admiration club for the benefit of the few.

This is a period of combination, and if the dental profession is ever to be lifted up in social or financial status, it must be through a combined effort and through organization. The minority who control the active and passive results of co-operation in this line, must not undertake to construe an aristocracy for the few to the detriment of the many, if success is to crown their efforts. That others besides myself have pointed views upon this subject I will quote from an editorial of the Dental Digest for April of this year. "Dental Societies next to dental journals are the greatest power for good and for progress. If attended as they should be they would far exceed the journals in possibilities. As the matter now stands, however, not more than ten per cent of the men in a state attend or are members of the state society. It is true that the practice of dentistry tends to narrow men, and that there is nothing in the actual work to develop in them a spirit of participation or co-operation. However, the narrowing influences of dental work cannot be held entirely responsible for the manifest lack of interest displayed by the average dentist in the meetings and work of his profession. . . . At a recent meeting of a large state dental society, one man occupied exactly one-fourth of all time on discussions . . . and at a recent national meeting the discussion on one paper made seventy-six typewritten pages." The remedies he proposes are "of dental societies having an iron-clad rule that an essayist must send a typewritten copy of his paper at least one week before the meeting to each of those who have been selected to discuss it," and "the society should first interest the dentist sufficiently to bring him to the

meeting, and when he is there so conduct itself, its clinics, sessions, etc., that he will feel well repaid for having come."

To the most of which I concur, except that portion which states that the practice has a tendency to narrow men, and the work not to favor participation and co-operation. Upon what ground this statement is made I fail to comprehend, or why dentistry should have this distinctive failing in comparison to other professions. In regard to having copies of the papers in the hands of men competent to discuss the same prior to its being read, I went even further, and advocated that every paper first be submitted to a committee for revision, acceptance or rejection, and when accepted, proper persons to discuss the same be provided with copies of the paper in time to look into the matter thoroughly, enabling them to discuss it intelligently. This was my idea over a year ago, and I have seen nothing to change it since. In regard to clinics, papers, etc., and the actions of societies as a rule toward those who indulge in either for the benefit of all, it is common usage for those entrusted with procuring suitable men and material for the same, to imagine their duty finished when they have exacted a promise of participants, and that is one bad feature of the whole body. They seem possessed of the idea that the men who take the active part in reading papers or giving clinics do so with the idea that it is a great privilege accorded them, that they are the recipients of favors instead of being the givers, and though they may come hundreds of miles, devote hours, perhaps days, of their time, and with considerable financial expenditure, in the majority of cases they find themselves strangers in a strange community, no one to receive them, or to assign them quarters, refreshments, or even a place to clinic, and are left to their own resources to hunt them up as best they may. When the meeting is over, if they get a prefatory "thanks en masse" of the body, they are fortunate indeed. Generally they go back to their homes, the results unsatisfactory to themselves from any point of view you may look at it, disgusted for having offered their services, and disappointed with the society and its members for its lack of courtesy and seemingly intentional neglect. It is no wonder the committees have hard work getting material to make the meetings successful. To my mind a reception committee should be appointed to act for the society upon every occasion where strangers are invited to participate in our proceedings; to meet, greet and care for the comforts of the guests within our jurisdiction, and to introduce them to the

members of the committee who may have their especial paper or clinic in charge, for assignment as to time and place.

The officers should see to it that such committee appears for duty at the time appointed. If we expect our guests to work for our interests, we must show them by every courtesy possible that we appreciate their efforts. Our duties do not end in the printing of their names in the program, or giving them the right to be seen and heard.

Time and again we invite men who are not members of dental societies to read papers or clinic, and it certainly is within reason not to expect them to become members if we do not make them welcome as our guests, and it is not only our duty to get them to join in professional work, but to aid by their presence and support our organizations and the benefits to be derived therefrom.

A lack of perception in this direction has driven from active membership and co-operation some of the brightest minds in our profession, who instead of finding their efforts appreciated, were confronted with actual opposition, personal slights and practical neglect, till disheartened and discouraged they withdrew all active interest, and the profession and not themselves was the loser.

An exchange very truly says: "It is no discredit to a man to have enemies and opposition. Many men hesitate to take any course that will call forth the opposition of any person, because they do not want to have enemies. The world is full of envious people. Some people hate a man because he is successful in business or occupies a prominent position in a community. The world has no animosity toward the quiet citizen, who offends no one, gets in nobody's way. It is the live men, the men of push and energy, who incur enmity. Every man who is fearless in the discharge of his obligation in any station of life has enemies."

Dental societies, like their offspring, the state dental laws, cover a multitude of sins. In the society we have members inside our gates who seem possessed of the idea that membership has conferred a perfect hallow round their alabaster brow, has made them into such superior beings that their past faults and mistakes have been purified and buried and they are the sole guardians of all that is righteous and the society's welfare, their whole energy seems bent upon keeping others from obtaining the benefits which they derived from their more generous brothers. Our state laws perform somewhat similar, inasmuch as they throw their protecting arms round

the incompetents within, and keep out those without, at the same time barring at the state line those who by years of practice may be more competent than his competitors on either side.

What is to be gained by the society by limiting its membership?

What harm can come to the society by the admission of every legitimate practitioner that can be induced to join?

Even granting that an applicant has at some period in his life, when under no restraint but that of his own conscience, transgressed one or more of the rules laid down by our Code of Ethics, is that fact to be punished by a lifetime banishment from our organizations, notwithstanding he is now willing to abide by and uphold all our rules and laws?

Is it not better for all concerned to extend to him the right hand of fellowship, aid him to conform to the rules and regulations of professional brotherhood, and to become a man amongst men, than to reject him and obtain a life-long enemy for our pains?

We are all to a great extent creatures of environment, and our actions must be judged accordingly. If we transplant the applicant from the environment of passive or active opposition to that of hearty co-operation, are not both to receive benefit?

Is it a fact that the members of dental societies are closer followers of the rules laid down in our Code of Ethics than are those who are not members? It would naturally seem as if such should be the case, but my personal observations have not so informed me. It seems that some members of our societies seem to think that these rules are only laid down as between members, and that it is their bounden duty to act the reverse when dealing with non-members or their patients.

This fact is not very conducive to obtaining the friendship of those who suffer from this cause, nor does it increase the esteem of the recipient of these courtesies for dental societies or the members thereof.

Article 2 of our Code "Maintaining Professional Character. Sec. 1. A member of the dental profession is bound to maintain its honor, and to labor earnestly to extend its sphere of usefulness. . . . the young should show special respect to their seniors; the aged, special encouragement to their juniors."

This is practically all there is in the code bearing upon the subject of which this paper is supposed to deal directly, except Sec. 2 records

that which it designates as unprofessional, and with that section I will deal further on.

I quote from the code: "A member of the dental profession is bound to maintain its honor and to labor earnestly to extend its sphere of usefulness." It is a safe proposition to say that a man is in honor bound not to bring in an applicant and endorse his application unless he be an honorable man, and professionally worthy of his endorsement, and to my mind one cannot "labor earnestly to extend its sphere of usefulness" to more advantage than by using his efforts to bring into the society every non-member that it is in his power to do, and I believe that this is in part what is meant by that clause.

Again I quote: "The aged, special encouragement to their juniors." What better encouragement can the elder members of our societies give their juniors than to extend the right hand of fellowship and ask them to be one of them, to join the organization that is especially for their benefit, to teach them how to be better men professionally, morally and materially, and aid them to learn and to live?

The young members of our profession are not as a rule precocious in manner or action, presumptuous in thought, presuming in assurance or dangerous from any standpoint. Their self respect and natural shyness prevents them from asking someone to propose them for membership in an organization that does not by some means show them they would be welcome. They know as well as anyone, that they are entering into a field and are competitors for the public's favor with their elders, and they feel a diffidence in asking favors from those they are in active competition with. I am not drawing on my imagination in this matter, but speak from personal experience. For fourteen years I remained outside the society's doors, and I would have been there fourteen years more, or fourteen times fourteen if life lasted, before I would have joined had I not been asked to do so. So I say to you, if you want the young men to join with you, "seek and ye shall find, ask and it shall be given you." I have put the question many times to non-members, "Why do you not join the society?" and the general answer has been, "I have not been asked."

Gentlemen, I feel I can safely say to you, it is not any rule or law or the Code of Ethics that keeps the majority of our profession out of the dental societies, or any transgression of them, but the fact of not being asked to join and a fear of being blackballed if they do

ask. Personal spite, petty jealousies and downright narrowness of some of our members who have succeeded by means that will not bear the light of day or reason, in turning down some of those who have applied, has turned away more men from our doors, than have been kept away because of any desire not to be governed by the Code of Ethics, or the rules, by-laws and constitution of your societies.

I will now quote you Sec. 2 of Art. 2, which tells you what is considered unprofessional to resort to public advertisements, cards, posters, handbills or signs, calling attention to peculiar styles of work, lowness of prices, special modes of operating; or to claim superiority over neighboring practitioners; to publish reports of cases or certificates in the public prints; to circulate or recommend nostrums; or to perform any other similar acts."

I quoted this section for the benefit of some of our members who evidently have never read it, and from personal observation, I would say, it would be a good plan to have that section revised or else stop finding fault with those whose names are not on the society's rolls.

There are people in this world who have a way of assuming that peculiar position of "Do as I say, not as I do."

I cannot close without one more quotation, this time for the benefit of some of our elders. It is Sec. 3, as follows:

"When consulted by the patient of another practitioner, the dentist should guard against inquiries or hints disparaging to the family dentist, or calculated to weaken the patient's confidence in him; and if the interests of the patient will not be endangered thereby, the case should be temporarily treated and referred back to the family dentist."

I will say, that if you notice right closely there is an "if" in that section that may be able to smooth the conscience of some of our brothers, but I do not advise that it be worked too hard. There is an instrument in the world known as a "boomerang" and it is just as well to bear it in mind. In closing I will simply quote that good old maxim "Do unto others as you would they would do unto you."

Keep this in mind, and the relation of 90 to 10 in our membership will be reversed, and the ten per cent will be all that is outside instead of in. Teach and preach to all, that "in union there is strength," in co-operation there must be mutual benefit, in professional communion broadened mind, and with a combination of all, the participants be better qualified to fight and win, in the battles of life, and to receive and dispense the benefits thereof, to the honor of our profession, ourselves and mankind.

**PRESIDENT'S ANNUAL ADDRESS.**

(By J. Edward Chace.)

Delivered at the annual meeting of the Florida State Dental Association at Jacksonville May 25-26-27.

Gentlemen of the Florida Dental Society—It was in this city, just twenty-one years ago, that a handful of Florida dentists, having noted the benefits to be derived from such meetings, came together for the purpose of organizing a state dental society. And it is fitting that the city that saw the inception of the movement, and has many times since extended to us her unbounded hospitality, should now, on our arrival at our majority, again open her arms and receive us.

We are glad to come to Jacksonville and again partake of her bounties, and we are proud to see how nobly and how beautifully she has risen from her bed of ashes.

But will it not be well for us to pause a moment in this our opening session and consider what it is that has brought us together—for what purpose dentists from all sections of our state have, by common consent, assembled in this metropolis of Florida?

Are we here for rest from the arduous duties which are ours as a profession? Then we had better be on the shaded bank of some limpid stream, idly watching the bobbing cork. Do we come for recreation and a frolic after the humdrum routine of office practice? Brothers, I have heard the remark made by a friend of this society that the Florida meetings are too much a frolic, that we don't get down to work with sufficient seriousness. Whether there be room for such a criticism, I leave you to say; but should there be, let us correct it.

For a statement of the objects of this society we cannot do better than go back to its constitution, where we read, "The objects of this society shall be to cultivate the science and art of dentistry, and all of its collateral branches; to elevate and sustain the professional character of dentists, and to promote among them mutual improvement, good will and social intercourse." And the furtherance of these objects is, I believe, that which actuates the great majority of those here assembled.

It is difficult to over-estimate the influences for good exerted by the dental society. It might be referred as a kind of coaling station, to which we return at regular intervals for the purpose of storing away energy for our professional fight. But it is a great



deal more than that. It is one of the several sources of our professional existence. Not only is this true in that our calling became a profession through the influences exerted by the dental society, dental college and dental journal, but in a sense more vital to us to-day, we continue to grow in strength and skill, as a profession, owing to these influences.

I think that most of us do not stop often enough to consider what would become of the professional status of dentistry without the intellectual, moral and social influences exerted by these associations.

Do you know of one dentist who is unprofessional in his methods, another who is unprogressive and content to give his patients poor services for poor pay? Yes, we all know these men, but they are not identified with the dental society, or, if members, are so in name only. Our organizations do not foster such characteristics; and when such tendencies are so much a part of one's nature as to make him reform, unappealed to by uplifting influences, satisfied with the past and unhopeful for the future, that man derives no pleasure or benefit from our meetings, and so does not attend them. If he did attend, he would only be a brake on the wheel of progress, out of harmony with our purposes and only able to produce discord. One such individual is a menace to the well-being of any organization, and I am glad that there is innate in the nature of things that which protects us from his presence. But there are a great many within our state who would make desirable members of this society, who are standing in their own light, by not taking advantage of the only opportunity offered within our state during the year for the advancement of dental knowledge and the improvement of dental practice. I think that they can be made to see this and a great many names added to our roll of membership, if we will but take up the matter in the proper manner and spirit.

I estimate that there are about 140 legalized practitioners within our state, and our society has a membership of about 100. As compared with the membership in other states, this is a remarkably large percentage. An editorial in the Dental Review for April states that only thirteen per cent of the dentists of Illinois are members of the state society, and we have no reason to suppose that Illinois is a very exceptional case. Believing that the Florida State Dental Society can be made, if not the largest, then certainly one of the largest dental societies in the United States, relative to the

number of dentists within the state, I recommend that an effort be made to this end, by the election of a corresponding secretary at this meeting, whose principal duty shall be the effort to bring into our society every ethical dentist within the state.

It is much pleasanter to look on the bright side than the dark, much more agreeable to call attention to strong points than weaknesses; but it is one of the unpleasant duties of your presiding officer to direct your attention in his annual address to what he regards as weak points in our organization, and if possible suggest remedies. It is generally acknowledged that the discussions which follow the reading of the committee reports and papers should be among the most interesting and instructive parts of a meeting. It is here that an opportunity is given every member for an expression of opinion and giving reasons therefor. New points in theory and practice should be brought out, and so every member contribute something to the interest and success of the meeting. It is right here that we find one of our greatest deficiencies. Where is the dentist who in the course of active practice for twelve months has not observed something out of the ordinary, has not learned some new or better way of doing something? Let us present these ideas, and if they are not always quite relevant, your presiding officer, for this meeting, promises not to rule you out of order. We are here for the purpose of mutual benefits; then let none of us be like the sponge, absorbing everything and giving out nothing, but rather let us all imitate the rose, which, fanned by the gentle breeze and refreshed by the dews of heaven, returns an hundred fold these bounties in the delightful perfume with which it ladens the air, and the beauty of color and form with which it pleases the eye.

The next great step in the evolution of dental laws in this country is the reciprocal feature, by the means of which the legalized practitioner may remove from one state to another without being compelled to pass an examination.

One of the greatest hardships growing out of our dental laws in the past has been that worked on the practitioner of ripe experience, who, for any reason, might desire to remove to another state to practice his profession. An examination which would have passed without difficulty a year or two after leaving college, might debar an eminently qualified man from practice outside his home state. The injustice worked by this feature of our various dental

laws has long been recognized, and various plans have been devised and considered for its relief. The latest and seemingly most feasible plan is that embodied in the Stocton resolution, which was adopted by the meeting of the National Board of Dental Examiners at Asheville. This resolution recommended that an exchange of license to practice dentistry be granted by the various state boards on the following conditions:

Any dentist who has been in legal practice for five years or more, and is a reputable dentist of good moral character, and who is desirous of making a change of residence into another state, may apply to the examining board of the state in which he resides for a new certificate, which shall attest to his moral character and professional attainments, and said certificate, if granted, shall be deposited with the examining board of the state in which he proposes to reside. The said board in exchange thereof may grant him a license to practice dentistry.

As the duties and powers of our examining board are distinctly specified by statute, it will be necessary, in my opinion, if we wish to arm them with this new power, that a special amendment be made to our present law.

Three states, however—New Jersey, Michigan and Indiana—have adopted the resolution without a change in their statutes. Wherein their laws differ from ours, I am not prepared to say. I trust that this matter will be thoroughly discussed at this meeting and the proper steps taken to empower our board to enter into this reciprocity with other boards taking like steps.

While on this question of dental laws, I wish to bring another question relating thereto before you. A question, which has been before this body in one form or another for every meeting during the past few years. I refer to the question of the illegal practice of framed suitable laws regulating the practice of dentistry. Go to still greater trouble to have these laws enacted by the legislative body, and then sit idly by and see the law violated on all sides. It is not my intention to condemn this activity as being "without rime or reason." There are reasons why more aggressive measures have not been taken; the most important of which is the fact that the only course open in the past has been the filing of complaint by a competing practitioner on whom the activity of the prosecution largely depends. This places the complainant in a bad light before the community and gives seeming consistency to the cry of perse-

cution raised by the defendant. We all naturally shrink from our duty when it necessitates our being placed in such a light. Another stumbling block has been the lack of activity on the part of the prosecuting attorney. These obstacles, which, I believe, to be the only real ones outside of apathy in our own ranks, may be overcome if we will unite on some plan and contribute liberally to the establishment of a fund for the purpose. This has been done in other states with the result that after one or two convictions are obtained the evil is abated. Any specific recommendation at this time, however, would be rather premature, as we have a committee out on this question, which will present its report at this meeting. I hope that when this report is presented it will be thoroughly considered and discussed, and that this meeting will not adjourn finally until the required amount for pushing the matter has been pledged, a plan of procedure determined upon, and an active committee appointed with not only power, but instructions to act.

In conclusion, I desire to congratulate the profession on the general advancement being made along all the lines of professional endeavor. Although we see an occasional article on "apathy in the dental profession," it is evident from a study of our current literature that this does not fairly represent the attitude of dentistry toward the great problems with which the profession is confronted. Probably never before in its history has the profession at large been so fully awake to its responsibilities and its possibilities. Our colleges are giving better instruction, our journals are giving us more and better reading matter and our societies are better attended, and more prosperous than ever before. Our workers in the fields of pure science are proving themselves equal to the solution of the many difficult problems which still confront us, and the many obscure workmen standing at their chairs day after day, throughout the various cities, towns and villages of our country, are giving better service and with less pain than ever before.

We have every right to be proud of the history of our profession, proud of its present status. Let us be up and doing, that we be not considered unworthy by our collaborators in this great work.

Finally I desire to thank you most sincerely for this distinction of serving you in the capacity of presiding officer, and I wish you a most successful meeting.

# ABSTRACTS

## A COMPARISON BETWEEN THE JENKINS PORCELAIN ENAMEL AND THE HIGH-FUSING PORCELAIN.

(By J. Q. Byram, Indianapolis, Ind.)

One of the elements of true dental art lies in disguising the artificiality of the restoration of lost tissue or organs, and he who is able to disguise his art is truly the artistic dentist. If the insertion of porcelain inlays has been carried to an extreme by some of the enthusiastic exponents, their enthusiasm has caused many dentists to become interested in porcelain work and their esthetic sense has been developed to a higher degree so that they are now able to practice dentistry in a more artistic manner.

To what extent porcelain will be used for the restoration of lost tooth structure depends largely on the dentist and his clientele. Before porcelain can be used as a universal filling material, a large number of dentists will be compelled to develop the esthetic side of their nature. They cannot become artists if they are lacking in esthetic tastes and appreciation of the harmonies of nature. Much is said about educating the public to a higher appreciation of dentistry, but the tendency of the profession to commercialism prevents many artistic operations from being performed. The questions that so often confront us are: "What will it cost?" and "How long will it last?" The success of the operation is determined by the price and durability from such patient's point of view.

Some of the advantages of porcelain inlays are:

1. Fillings can be inserted which only the expert can detect.
2. They are non-conductors of thermal changes.
3. The margins of cavities filled with porcelain are not readily attacked by caries.
4. The patient is relieved of the excruciating pain of adjusting rubber dam and clamps for cavities extending beneath the gum.
5. The nervous strain on both patient and dentist is lessened.
6. Porcelain gives a better masticating surface than metal.

7. Busy patients need not spend so much time in the dental chair.

The disadvantages of porcelain are:

1. The friability of porcelain causes it to fracture readily.
2. It is impossible to bevel the cavity margins to protect the enamel.
3. It is difficult to match the color of the natural teeth.
4. The cement used as a retaining medium may cause a change of color in the tooth or inlay.
5. The cement will be dissolved, unless there is only a thin film used as a retaining medium.

Porcelain is not applicable for all forms of restoration, and it should not be expected to entirely replace gold and amalgam as filling materials. When properly applied and used where indicated, it ranks first as a filling material. The indications of porcelain as a filling material may be classified first, according to the condition of the patient, and second, according to the class of cavities. Under the first classification comes the following.

#### WHERE PORCELAIN INLAYS ARE INDICATED.

1. In the teeth of nervous patients where it is almost impossible to prepare retentive forms of cavities for gold or amalgam fillings.
2. For those patients, either young or old, where the shock from the insertion of a large gold filling will almost cause nervous prostration.
3. For that class of patients who have a keen appreciation of artistic dentistry and who object to the conspicuousness of metallic fillings.
4. For those cases where the pericentum and alveolar process are diseased, always excluding any material which requires a great deal of condensation.
5. In teeth where caries has progressed to such an extent that the pulp is almost involved, and if filled with a metal the irritation caused by thermal changes will cause death of the pulp.

#### THE CLASSIFICATION OF CAVITIES WHERE PORCELAIN IS INDICATED MAY BE AS FOLLOWS.

1. All cavities on the labial and buccal surfaces of teeth.
2. All simple proximal cavities on incisors and cuspids.
3. Proximo-incisal cavities, if the cavities can be so prepared that the retentive resistance will be greater than the stress.

4. Cavities involving all or a portion of the incisal edge.
5. Deep cavities on the occlusal surfaces of molars.
6. Proximo-occlusal cavities of bicusps and molars, provided a large enough mass of porcelain can be used to withstand the force of mastication.

7. Cavities involving the entire occlusal surfaces of molars.

THE CONTRA INDICATIONS FOR PORCELAIN INLAYS ARE.

1. In those cavities where the stress will dislodge the filling or cause it to fracture.
2. In all cavities where it is impossible to construct a good matrix because of the inaccessibility of the cavity.
3. On incisors which are thin labio-lingually through the incisal third.

The construction of porcelain inlays involves four sets of manipulative principles.

1. The preparation of the cavity.
2. The construction of the matrix.
3. The fusing of the porcelain.
4. The setting and the finishing of the inlay.

Each step presents a number of mechanical principles which if not properly observed will cause an imperfect filling. The failure of many inlays may be attributed to faulty manipulation, for too many beginners attempt the construction of inlays for the mouth before they have mastered the technic.

That many dentists fail to comprehend the principles by which inlays are retained are shown by their cavity preparations, and when asked how they expect the inlay to be retained, their answer is, "by cement." This lack of comprehension may be largely due to the radical statements of some of the porcelain enthusiasts, some of which are as follows: "For those bordering on nervous prostration and those high-strung, nervous temperaments for whom it is a physical impossibility to prepare a cavity even for a cement filling, to say nothing of gold, you can do permanent work with porcelain." After the cement has completely crystallized a thin porcelain filling in the occlusal surfaces of molars will have the full strength of the whole tooth to resist the masticating stress and is in no danger of fracture. A dentist has been brought up all of his life on one law of self-retentive form of cavity and interlocking form of filling and it is hard for him or inlay workers to break away from that law. There are inlay workers to-day who are working upon self-retentive forms

of cavity formation, and grooving their inlays or baking into them platinum pins or loops so as to make them as near interlocking as possible. I believe inlays depend upon the law of close adaptation and the medium of completing the close adaptation crystallizing under pressure."

If such statements were true, there would be no need of other filling materials. But such as these have mislead many skillful dentists, and after a few failures they have decided that porcelain as a filling material is not practicable.

#### PREPARATIONS OF CAVITIES FOR INLAYS.

Cavities for inlays should be prepared with the same carefulness that should be used for other fillings. The opposite walls of simple cavities should be parallel and form right angles with the pulpal wall. In cavities where steps are used, they should involve enough of the tooth structure to resist the force of mastication. It is better to cut the step through the middle third of the crowns to prevent the porcelain and cement from showing through the enamel on those incisors that are thin labio-lingually through the incisal third. Where pins are inserted to assist in retaining inlays, in teeth with vital pulps, they should extend far enough into the dentin to give necessary resistance but not far enough to encroach upon their pulps. All frail enamel should be removed and the margins of all cavities should be smooth and in definite curves or straight lines. The margins should be so formed that there will be no short bevels to give frail edges of porcelain.

The best instruments for the preparations of cavities for inlays are flat-face fissure and inlay burs, small Arkansas stones and excavators with short blades and their edges so formed that they will make all angles either right or obtuse and well defined.

#### THE MATRIX.

There are three general methods of constructing matrices for cavities:

1. Swaging the foil over a negative or an impression of the cavity.
2. Swaging into a positive of the cavity.
3. Burnishing directly into the cavity.

In cavities involving only the labial or buccal or lingual surfaces or in simple proximal cavities, a matrix can be swaged over an impression and an inlay constructed which accurately fits the cavity. The method of swaging into a positive die of the cavity has some



followers, but it hardly seems possible that a positive die can be obtained that will reproduce the margins of the cavity with that degree of accuracy that is required in inlay work. The method of burnishing the foil directly into the cavity has more advocates than either of the other methods, and many who have tried the swaging process have returned to this method.

A combination of the swaging and burnishing methods can be used successfully. The technic of constructing a matrix is as follows: Take an impression of the cavity by mixing a mass of cement and embedding the impression in it. Allow the cement to harden, then separate and invest the die in a ring of a swaging device. Coat the die with soap-stone, then place a piece of foil over it and swage with a water-bag or unvulcanized rubber. Remove the matrix and cover the floor with porcelain and fuse. Now fit the matrix into the cavity and burnish the metal to the margins. The heat required to fuse the porcelain thoroughly anneals the metal. This method is especially good in large cavities, and has the advantage of conforming the foil to the cavity by the use of the die so that the final burnishing is made quite easy.

#### THE FUSING OF PORCELAIN.

Porcelain is divided into high and low-fusing bodies. There is a difference of opinion regarding the relative merits of each form, and the ardent advocates of the one can see no good in the other. Both have their application, and the dentist should no more confine himself to one form of porcelain than he should to one form of gold or alloy.

The high-fusing porcelains contain silica, kaolin, feldspar, a flux and the oxides of certain metals. Silica is the oxide of silicon; it is almost infusible and insoluble in all acids except hydrofluoric. It gives the fused porcelain a translucent appearance and adds strength. Kaolin is the silicate of aluminum and is very refractory clay. This is added to porcelain to impart stability of form, and it is this property which permits it to be moulded and carved. Relatively large proportions of kaolin tend to give porcelain an opaque appearance. Feldspar is a double silicate of aluminum and potassium. "On account of its ready fusibility, it serves to agglutinate the more refractory ingredients, and when diffused throughout the mass imparts a semi-translucent appearance." The flux is composed of some of the following: Glass, the carbonates of sodium and potassium, calcined sodium borate, sodium and aluminum fluorid (cryolite).

One or more of the materials is added to the silica or feldspar or both and are used to render the porcelain more fusible.

The basal ingredients of high-fusing porcelain may be used in a formula of low-fusing, but the fusing point is regulated by the proportion of flux added to the formula. The flux is incorporated with the basal ingredients and the same heated until the flux agglutinates the refractory materials. The process of fusing and grinding is continued until all the ingredients are thoroughly mixed. The action of the flux on the refractory materials increases the fusibility and the porosity of the porcelain.

The Jenkins porcelain enamel is classed as a low-fusing body. It is prepared by a process of manufacture not in vogue in any other laboratory, and it has properties not possessed by any other low-fusing porcelain. It has density, hardness and strength equal to any of the high-fusing bodies. Its colors more nearly harmonize with the natural teeth. Dr. Walter W. Bruck of Breslau, Germany, says: "It has been claimed that the Jenkins material does not differ essentially in comparison from the glass powders previously in use, and that it melts over a Bunsen-burner, which fact justifies the suspicion that it is nothing more than a glass compound. I have busied myself in these last few years, not only with making fillings after the Jenkins system, but also have been interested in studying the composition and fusing point of this porcelain enamel, and of other compounds of like nature. . . . I had some of the porcelain mixtures, which have come most into use, analyzed in the chemical institute of the Breslau University, the result being that the Jenkins powder is shown to be almost identical in composition—the variation being but slight, with the so-called 'high-fusing' porcelain as well as with the hard German porcelain tested by H. Segar, but not more exactly designated."

#### MATRICES FOR JENKINS' BODY.

The technic for preparing a cavity and constructing a matrix is the same for the Jenkins porcelain enamel as for the high-fusing porcelains. Either gold or platinum foil may be used for the matrix. On account of the pliability of gold, some of the advocates of the Jenkins enamel claim that its chief advantage is that it may be burnished into deep cavities, and better adapted to the cavity margins. It is true that gold is more pliable than platinum, but with the improved form furnished by The S. S. White Dental Mfg. Co., a matrix for a cavity of any depth can be constructed of platinum

that will conform to its walls and have its cavity margins definitely defined. Doctor Jenkins recommends the use of No. 30 gold-foil for constructing matrices. Because of thinness of this gauge foil, the matrix tends to distortion upon removal from the cavity and to change form during the process of fusing porcelain. Any material used for matrix should be rigid enough to retain its shape upon removal from the cavity, or when heated to the fusing point of the porcelain.

A table compiled by Dr. W. A. Capin and Mr. J. F. Hammond gives the approximate fusing point of Jenkins' enamel 1544 F., Brewster's enamel 2047, Brewster's foundation 2210, and S. S. White's and Close's body at 2300. The low degree of heat required to fuse the Jenkins' enamel permits it to be fused in the flame of a gas or gasoline blowpipe. This is an advantage over high-fusing porcelain for those dentists who are unable to procure the electric current—*Extract Summary*.

### STERILIZATION.\*

(By H. Newton Young, D. D. S., Wilkesbarre.)

The necessity of absolute cleanliness on the part of the dentist of his hands, his person, his operating room, his dress, should be universally recognized. The operating room must be kept scrupulously clean, well ventilated, the floor free from refuse cotton or other germ-producing substances; his clothing immaculate, sterilizing himself by frequent baths, his hands kept thoroughly and constantly clean, his nails properly manicured—in short the entire atmosphere surrounding him be such that it would not be revolting to the taste or dangerous to the health, but pleasing to the most esthetic, refined, sensitive lady, or indeed to anyone of a cleanly habit who may find it necessary to visit him.

The same must be said of his instruments, napkins and towels, drinking glasses, rubber dam, in fact, everything which comes in contact with the patient's mouth must be kept surgically clean or thoroughly sterilized. Although comparatively recently sterilized napkins have been placed upon the market, in the absence of absolute knowledge of how, where and when they are sterilized I prefer them done up under my personal knowledge, knowing that thorough boiling in soap or soda water a few minutes furnishes a positive method of sterilizing them. Care must be taken to sterilize the drinking glasses after each patient, by thorough boiling in fresh

\*Read before the Pennsylvania State Dental Society, at Wilkesbarre.

water. If the suggestion of sterilizing the rubber dam should be construed as an admission of the second use of it, I would gladly show my contempt for such a pernicious habit in refusing to make further mention of such a necessity. We all know the dam furnishes the most fertile means of transmitting disease germs from one mouth to another, and I cannot conceive of an emergency arising that should tempt one to use the same piece twice under any circumstances. The appreciation shown by many patients at the use of fresh pieces for each operation should be just proof that such economy would be most revolting to them.

Many methods or suggestions have been made for the thorough sterilization of our instruments. The question has been a difficult problem to solve, and even in the light of bacteriological tests it has been only recently that we have approached a definite solution. As has been proved, there is a great difference between sterilizing appliances that will readily absorb substances when brought in contact with them, and those which are solid and must be acted upon within a reasonable time and without injury to them.

It is not my intention to enter into a discussion or even a comparison of the many sterilizing agents that have been given to us through the experiments of bacteriologists, pharmaceutical chemists or commercial promoters, for all of which are claimed special advantages in each department for which they were produced. There seems to be no doubt at present but that the ideal antiseptic is a liquid which must act almost instantly upon bacteria without in any way injuring the instrument, but to determine which to use, in the absence of even an elementary training in bacteriology by the greater majority of us, we must decide upon such materials as have been suggested to us by those who have had the opportunity of submitting these investigations to the test of bacteriological criticism.

The question naturally to be asked is, to what extent do we run the risk of transmitting infectious diseases? I can best answer this by quoting from Professor Miller's "Microorganisms of the Human Mouth," in which he says: "In regard to the possibility of transmission of disease by dental instruments, there have been so many cases reported in dental and medical journals that the matter should be familiar to every practitioner of dentistry. I may call attention, however, to the large number of cases (some forty) reported in my book, in which infections of various nature, including septicemia, pyemia, meningitis, and syphilis, followed operations in the mouth."

Now, finally, permit me to make a short summary of the methods to be observed by the cleanly inclined dentist: First, Scrupulously clean personally, and in addition to what I have already enumerated I will mention prophylaxis, which should not be necessary to be mentioned, so far as the keeping pure, sweet and clean his own oral cavity, but for the good of the patient I fear too many of us neglect the important duty we owe them in advising more frequent visits to the dentist. The time was that to advise a general clean-up once a year was considered sufficiently frequent, but with our later preventive knowledge a visit at least three or four times during that period would much better serve them.

Second. His entire professional atmosphere and environment should be pure beyond criticism.

Third. The thorough sterilization of his clamps, mouth mirrors, excavators, engine burs, drinking glasses, and, in fact, all instruments that may come in contact with the tissues of the mouth, not at the end of the day's work or week's work, but after each patient. You say this is impossible for the busy dentist, and so it is. It is scarcely within the range of possibilities for him to do it thoroughly and constantly and this problem can be solved only by the employment of an assistant. Yes, you can afford it. You cannot afford to be without one. It is as legitimate an expense to you as a horse and buggy are to the physician, and until such help is added I can make the assertion without fear of contradiction that no dentist can say he is honestly practising surgical sterilization.—*Extract Digest.*



## **PROCEEDINGS OF SOCIETIES**

**PROCEEDINGS OF IOWA STATE DENTAL SOCIETY, HELD  
AT SIOUX CITY, MAY 5, 6, 7, 1903.**

**EVENING SESSION, WEDNESDAY, MAY 6, 1903.**

### **CLINIC BY DR. BROPHY**

Report by Dr. William Finn—Dr. Brophy has with him outfit number one. It is a gasoline outfit and has three connections or three combinations; a porcelain furnace, a Bunsen burner and a blow pipe. The blow pipe has bellows connecting with the gas to furnish air for the blow pipe. The other, the furnace and the Bunsen burner, are furnished with air by the pressure of the air from a little pump. It is a very complete outfit, and is a very nice thing for a man in a town where they have neither gas nor electricity. You can vulcanize with the Bunsen burner, make porcelain crowns and bridges, and solder any bridge work and crowns and things of that kind. It is a complete outfit. Then he has with him a tank with a Bunsen burner and a frame to hold anything above the Bunsen burner, such as a boiling kettle and things like that. It is a very valuable outfit to a man in a small place, and I do not know but it would be well for a man in a city, too.

Dr. Crandall—Has anyone any questions to ask or any remarks to make upon this clinic?

Dr. Lewis—I had an opportunity to see the appliances this afternoon, and there seems to be no reason why they are not equal to anything else of the kind. I should consider them as easy to regulate as gas. Possibly Dr. Brophy can regulate them better than any other person, but I do not see why any man could not use them and get the same results, and by combining them they give a great amount of heat. It was absolutely satisfactory. A great many men do not realize the value of gasoline blow pipes and furnaces. A gasoline blow pipe will do as much work as one of the gas blow pipes, and it has a great many things to commend it, from the fact

that you can set it down, especially the Bunsen burner or the blast furnace, and obtain a steady pressure. You always have a large flame with them, which is another advantage and safeguard.

Dr. Crandall—I have used a very similar appliance for some time and I can flow platinum solder with the greatest of ease; and I have always understood it took oxyhydrogen to do it. Any one else any remarks to make?

Dr. Brophy—The principal claim which is made for this apparatus is that it offers to the dentist located in the country town and who has not the advantages of gas and electricity, the facilities which the man in the city has; this is certainly a matter of great merit for the apparatus, because the man who is located in the smaller town ought not to be handicapped in any way in efforts to do the work of the profession, whatever it may be. A gasoline apparatus—I don't wish it understood that I am talking about this particular one—any gasoline apparatus properly constructed and made to cover general laboratory purposes is a godsend to the dental profession, simply from the fact that it places a man, as I have said, out in the little country town in the position to compete with his brother dentists in the large cities, who have their offices and buildings equipped with all modern paraphernalia. The number one outfit, as the doctor stated, covers the entire field. The Bunsen burner runs independently of the foot bellows, and answers every purpose of the gas Bunsen burner. You can use it for waxing up, heating water and all that sort of thing; use it for vulcanizing, and use it for soldering; and right here I want to say that a piece of invested work placed on the tripod over this burner becomes so thoroughly heated because of the intense heat of the flame that the blow-pipe is only needed to direct your solder where you wish it to flow, and the result of that is that in soldering a piece of work, a crown for instance, you will always find that your solder has reached the cervical border. It goes to the bottom. I have no doubt you have all had the same experience and know that when you undertake to solder a Richmond crown, for instance, your solder is liable to bridge across the space and leave the cervical border unfilled. Why does this happen? Because the case was not sufficiently heated. So in soldering a piece of work of that kind the first thing is to get it so hot that the solder will tend downward. This can be done in any burner of sufficiently intense heat to heat the lower portion hotter than the upper portion. This is accomplished by this Bunsen burner. The blow-pipe is

hardly called for except to direct the solder. The blow-pipe attached to this apparatus is unsurpassed for intensity of heat and readily fuses twenty-five per cent platinum solder. You can get a pin flame or a heavy brush flame without removing your thumb from the disk that turns the valve, and when you have reached a flame that you wish to hold you simply remove your thumb and it remains that way. The burner of porcelain attachment runs from pressure produced through the pump in the tank, and is so constructed that the combustion in the furnace is absolutely perfect, or as nearly so, I think, as it is possible to attain. When the burner is in operation remove it back from the furnace and it goes out, showing that the combustion is all within furnace; and you will notice, furthermore, that when the furnace is running at an intense heat, there is absolutely no flame escaping from it, showing in this way, also that the combustion is perfect. I don't know that I have anything more to say. You have all seen this apparatus in operation to-day, and I take it that you are generally informed as to what it will do.

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#### CLINIC BY DR. C. B. LEWIS.

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Report by Dr. Hunt—I was very much interested in this clinic from the fact that it is a means of getting an anchorage to the root that is accurate and a quick way to swage the plate upon which the superstructure rests to the ends of the root. Another feature which seems very desirable is the preparation of the ends of the root. The gum tissue was not mutilated; the ligament, so called, was not mutilated so, but what when the crown is finished and adjusted it adapts itself nicely to the crown as it did to the original tooth. Aside from that, I don't know that there is anything particularly new in the appliance for getting the adaptation at the ends of the root. It is ingenious and very simple, and the whole operation is simplified. At the present time I am prepared to say that the band about the root and bands in general are oftentimes detrimental. That is, you rarely see a band but what you find more or less gingivitis existing. Many crowns can be adjusted without a band and are successful. I think the doctor has a very ingenious method of getting a crown that could be accurately conformed to the shape of the root. For instance, a root may have on its distal side a concave surface and the reverse on the mesial side, and it is not easy to



adapt a crown to that form and shape. When it is adapted according to the doctor's clinic, and the gum tissue goes back against it and the materials are well finished and adjusted, there is little or no trouble from inflammation of the gum tissue.

Dr. Clack—In this class meeting I would like to give in my testimony if I may in relation to the Lewis crown. We speak of it in our country as the Lewis crown, simply because Dr. Lewis devised this little appliance for taking the impression of the end of the root and for swaging that little cap. It was a very lucky day for me when Dr. Lewis came to my office and assisted me in making four incisor crowns in one mouth. I wish you could see those crowns to-day. The gum tissue is apparently as healthy as when these teeth were first treated. There is no recession whatever. There is no blue line around the gum. There is no irritation or gingivitis. Since that time I have used no other crown for the anterior teeth, and while at the Black Club in March I saw Dr. Lewis of Austin—no relation, by the way, to this Dr. Lewis, but a very ingenious dentist and bridge workman—take a piece of work to Rideout at St. Paul, who was to give us a clinic in his laboratory on bridge work. He took there a bridge extending from the cuspid to the second bicuspid with the Lewis crown on the cuspid, and told us at the same time that he frequently made longer spans than that and depended on the Lewis crown for an attachment to the cuspid and the pier to that bridge. I think if you will once try it you will always remember the doctor with gratitude.

Dr. Lewis—In regard to the instruments used for fitting the plates to the end of the roots, I have nothing special to say, because the most of you gentlemen have seen that they are only two in number, and two will practically fill the entire field. In devising these I tried to construct them according to accurate measurements. In other words, to adopt the average measurement of the teeth as given by Dr. Black in his work, and I have yet to find a case where I could not use one or the other of those two instruments. These instruments with the use of the modeling compound will give as good results as is necessary in the majority of cases. Dr. Clack mentions some crowns that we made in his office last summer, or some time before that, and I believe most of the credit should come to Dr. Clack instead of me; he made most of the crowns; at least, I think he did all the good work on them and he tried to blame it on me, and I do not think I deserved the credit for it all. How-

ever, I did have the pleasure of showing Dr. Clack the use of these instruments, though I believe he gives me too much credit for originating the crown. All I claim is the making of these instruments, and at the time of their introduction I made the statement that the real value of the instrument depended not upon the fact that I was simplifying an operation, but it would make easy an operation which would preserve more teeth than the usual crowning method. In other words, it enables any man to fit one of the plates and leave the periodontal membrane in normal condition. In some experiments in regard to the results produced by the destruction of a membrane containing the yellow elastic fibers, I found in scar tissue replacing it there were no yellow elastic fibers; it was all white fibrous tissue. As a result of that it would not resist the irritation of the food against the margin of the gums. A great many asked me this afternoon in the use of these instruments whether any other material is used besides the modeling compound. There are a great many substances which you can use, and someone's ingenuity will probably devise a material which is superior to the compound. I had an experience once when I found that the compound did not force the gum out far enough, and I found it necessary to pack the end of the root with gutta percha for a few days. If you have any trouble that way, it is a very simple matter to pack the root with gutta percha twenty-four or forty-eight hours, or as long as you wish to, by inserting a small pin into the root. I advise you if you cannot set the crown the same day to always do that, and use extreme care because the gum will drop down over the root and get in the way of your cap. These instruments are sufficient to cover all cases. I think we have with us this evening a gentleman who is very partial to the Logan crown when properly mounted, and I would like to ask him whether in his estimation you can mount a Logan crown with this appliance and produce any better results than you could by mounting it in the ordinary way. Dr. Hinkley is the gentleman to whom I refer.

Dr. Hinkley—I cannot give a direct answer to the question, but having had some experience in mounting Logan crowns, following same general plan and getting practically same result as that obtained by Dr. Lewis in his clinic. I can readily see a great advantage in the use of Dr. Lewis' special instruments and method of mounting a Logan crown where specially indicated, but I do not know any one method that will fill the requirements of all cases.

There are at least three general methods of mounting Logan crowns that are frequently indicated in our practice and each method has its special indications and limitations. I was very much interested in Dr. Lewis' clinic and consider it a very permanent and successful operation.

Dr. Crandall—Next we have the clinic of Dr. Welch. I have not appointed anyone to discuss the clinic. Dr. Brophy, I believe, is familiar with the method used, and I will call upon him to open the discussion of the clinic.

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#### CLINIC BY DR. CLACK

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Dr. Pherrin—This is a case that requires no discussion. It is simply one of Dr. Clack's mighty good fillings. That is all there is to say about it.

For the benefit of those who did not see the clinic I will state what it was. That the cavity was formed after Dr. Black's or Dr. Wedelstaedt's step method. It was a step cavity. Dr. Clack studied the conditions of the tooth. The gingival third of the cavity had a square wall, and I believe I understood him to say that it extended a little farther. The decay had already extended forward, and therefore he was obliged to cut the cavity a little deeper than he would in ordinary cases. In this cervical third he used the annealed filling, the soft filling, the unannealed or soft filling, and condensed it thoroughly. After that he used the annealed gold pellets and got a very good point of contact on the mesial surface of the filling, and I heard come criticism at the chair that they didn't see any particular point on that surface. Now, if you will take into consideration the anatomy of any tooth, the distal surface of any tooth is where the distinct point of contact is. I think that Dr. Clack followed out the anatomical lines of the tooth to the very best advantage in this case. It was a case where the mesio buccal crust could not be fully restored. That was another thing that he took into consideration, and did it nicely to suit the case. It was a very peculiar occlusion, and it was a very important one. As to the condensing of the filling, it was done by the usual method with a small plugger point, Dr. Wedelstaedt's No. 3, which makes a very hard, extremely hard, filling. I have watched the method and I stand corrected. I am going to try this small plugger point. I believe the reason for so many failures is that we don't put in

fillings and condense them with the small plugger point. I believe, all in all, that Dr. Clack performed a successful operation as he always does, and there is no criticism about the polishing of the filling because he didn't pretend to polish it.

Dr. Clack (closing discussion)—This filling was extended farther gingivally than I should have extended it had it not been that it was previously filled with an alloy filling. It had not been extended gingivally, and recurrence of decay had taken place until I was obliged to square out the gingival seat and go a great deal farther than would otherwise have been necessary. I believe that is one of the requirements of any cavity where there shall be stress is that the gingival seat shall be absolutely flat and at right angles with the line of stress. I will speak more on that to-morrow. Another feature that I wish to call your attention to is this: After the unannealed gold (three and one-half sheets of No. 4 gold foil) was placed in the gingival third of that cavity with the half on either side extending along the lingual and buccal margins, after that was in place and condensed next to the axial wall, I made and finished the filling with one plugger. I think you will find a difference in the condensation of gold where you use more than one plugger. I don't believe it is possible for pluggers to be made so nearly alike but that there will be a difference in the serrations. Wherever that difference exists I believe there will be more or less space. I didn't finish the contact point on this filling for the reason that there was a very large cavity of decay in the distal surface of the second bicuspid. I was unable to fill that to-day. It was not my intention to make a filling there, and I left that that the dentist who makes the next filling will have the separation that now exists. This contact point—this extension that I spoke of of the filling that way—I cannot call it a contact point because it was not finished to a point—will tend to hold the teeth apart and preserve what space I gained. The last finishing of the filling at the request of the patient—he was in quite a hurry to get home—we left to Dr. Kellogg. I should have given it a better finish and I would have except for that. The filling contained ten and six-sixteenths sheets of No. 4 gold foil.

Dr. Crandall—Next we have a clinic by Dr. C. W. Bruner; the clinic called for a porcelain inlay in the mesial or distal surface of an upper incisor. It will be discussed by Dr. Dana.



# EDITORIAL

## STERILE INSTRUMENTS.

The following communications to the New York Times and published in that paper furnishes food for thought.

To the Editor of the New York Times: I should like to hear from some one better versed than I am if there is not some kind of a law by which dentists are compelled to clean their instruments after each operation? I have been to several dentists in this city of ours, and have especially noticed that the same instrument was used without being put through a cleansing process. Now that the Health Department is after the barbers, why not get after the dentists, as I am of the opinion that there are more germs lurking in a decayed tooth than there are on the face of a person?

Jamaica, L. I., May 2, 1904.

A SUBSCRIBER.

To the Editor of the New York Times: Allow me to express my thanks to "A Subscriber" for the very much needed remarks on "The Cleansing of Dentists' Tools." Public interest should be aroused against this flagrant violation of nature's most necessary law, that of cleanliness. I wish to state my experience. I have just gone through a ten weeks' siege at a dentist's for very expensive work. During the times I waited in the office I observed the patients who were treated, the same instruments being used on the different ones without cleansing, a similar performance being done in my case and on each and every occasion.

I am informed that at a meeting of the Medical Association held in this borough a few months ago the prominent lecturer on dental surgery urged the great necessity of antiseptic cleaning of dental instruments, guarding against germs and microbes of throat and lungs, as well as those lurking in decayed teeth. There is no law to compel dentists to cleanse their instruments, either after each operation or at any other time, and the only way at present lies with the people themselves to take up the matter with their respective dentists and insist on the absolute cleanliness and sterilizing of their instruments, for which purpose machines, easy and inexpensive ones, are made, or the penalty would be a change to a dentist who is willing to be careful and guard them against worse evils from disease than even those mentioned herein.

A. C. S.

Brooklyn, May 4, 1904.

To the Editor of the New York Times—I most heartily agree with "A. C. S." regarding his views of the thorough cleaning of dental instruments, not

only before, but after each patient, and in all my fifteen years' practice I have never neglected that necessary matter. But I cannot help inquiring or wondering what sort of a dentist "A. C. S." called on and spent ten weeks at intervals with, and why he stood it so long, as every dentist nowadays with any reputation does not neglect so important a matter. A dentist who does should be relegated to the woods. F. L. M.

New York, May 5, 1904.

To the Editor of the New York Times—I would like to state that there is no law to compel a dentist to cleanse his instruments, nor is there any need for one, any more so than a law compelling general surgeons to asepticize their instruments.

Dentistry is but one branch of the healing art, and among the great majority of ethical practitioners the same regard to rigid antisepsis is observed as in general surgery.

That there are unclean men in the profession is not to be denied, but there are very few ethical practitioners who do not realize what a valuable asset cleanliness is. Your correspondent must have fallen into the hands of one of "the great unwashed," and I would advise him to change his dentist.

A DENTIST.

New York, May 5, 1904.

That there is great improvement in regard to cleanliness, both surgical and otherwise, among dentists, there is no doubt.

The fact remains, however, that there is chance for improvement in this respect and it would be a great pity if in this day and age an outraged public would in self-defense rise *en masse* and compel the law-makers to enact legislation for dentists similar to the laws which some of the states have on their statute books for the regulation of barbers.

The great majority of dentists are scrupulously clean, but that there is here and there a man who is careless regarding this matter there is no doubt; and it is not always the man with the big sign.

The busy dentist sometimes thinks that he cannot spare the time to properly sterilize his instruments, and neglects this very necessary precaution against the transmission of disease from one patient to another.

That this is important, the following reference will attest: H. Newton Young calls attention in his article on sterilization in the current number of the "American Dental Journal" to some forty cases reported by Professor Miller in his book, "Micro-organisms of the Human Mouth," in which infection of various nature followed operation in the mouth.


The patient himself is improving year by year in his knowledge of aseptic surgery and we are foolishly "hiding our heads in the

sand" if we do not know that we are observed when we fail to properly clean our instruments, and ourselves.

That there will ever be laws enacted for the regulation of this feature of the practice of dentistry there is but a remote possibility; but that there is need for "eternal vigilance" in this respect and need for general agitation on the subject no one will question.

It is to be hoped that reference in the newspapers to this matter will soon be unnecessary.



A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### DR. GEORGE HILL HURD.

Dr. George Hill Hurd, one of the oldest dentists in the city of Cleveland, O., died June 7th. He had been confined to his bed for a month and passed away with the members of his family at his side.

Dr. Hurd was born in Sothington, O., seventy-six years ago. His father, Joy Hurd, was one of the band of settlers who emigrated from Connecticut and located on the Western Reserve. When a boy Dr. Hurd's family moved to Geneva, O., where he entered the employ of the Lake Shore Railroad. He became a member of the surveying party, which, penetrating through a tangle of forests, mapped out the road through northern Ohio. After that Dr. Hurd returned to his Geneva home and, confronted with the choice of his future work, chose to follow the profession of his brother, Dr. Hutson R. Hurd of No. 704 Scovill avenue, who was then practicing dentistry in Crawfordsville, Ind.

Dental schools were unheard of at that date. The profession was in a crude and rudimentary state. Dr. Hurd became a pupil under his brother's tutorship, much in the manner of an apprentice. He mastered the profession of dentistry and then, following the course usual in those days, became a traveling dentist.

A few instruments and a chair of light material composed his equipment. His wanderings took him into nearly every state in the Union. He followed the course of the Mississippi for a while, traveling almost the entire stream on steamboats and moving from plantation to plantation. At times he carried his chair on his back, and at other times the hospitable owners furnished transportation to the next stop.

When the tunnel disaster occurred in Cleveland several years ago within a short time Dr. Hurd invented a helmet for the use of the rescuers, which by means of compressed air allowed them to enter the tunnel in perfect safety.

During his late years Dr. Hurd continued his practice in Cleveland, but devoted a large part of his time to his inventions.



**DR. JOHN WESLEY VAN SANT.**

Dr. John Wesley Van Sant, after a struggle of thirteen days to survive the terrible accident of the evening of May 1, when he fell through the elevator shaft in the Van Sant building, died May 22 as the result of the bursting of an artery in his chest. Other symptoms of an apparently more serious nature had obscured the danger resulting from congestion of the chest arteries, and his death from this cause was quite unexpected.

Not fifteen minutes before his death he had shaken hands with Dr. Foerter, who was attending him, and assured the doctor that he was feeling much stronger and was ready for the operation on his spine, which he expected would be performed within a few days. The end was quite sudden and entirely painless. After examining his patient's physical condition the doctor left for his club, and there received word of Dr. Van Sant's death.

He was born at Perth Amboy, N. J., October 2, 1852, the son of the Rev. Isaac N. Van Sant, a Methodist minister. His mother is still living, at 83 years of age, in Ocean Grove, New York. At the early age of 13 he entered the dental office of Dr. Hanks, of New York, returning to his native state later and practising with his brother, Joseph Van Sant. He located in Peoria in 1870. In 1895 he purchased the lot at the corner of Adams and Chestnut streets, and erected the building which bears his name. He was united in marriage with Miss Ida Seifkes, the widow and three children, Mrs. Harsh, Ralph and Leport Van Sant, surviving him.

Dr. Van Sant carried life insurance for over \$25,000. The funeral services were conducted by the Masonic order.

**DR. J. COLLINS PAYNTER.**

Dr. J. Collins Paynter, the first maker of porcelain teeth and the first shipper of the teeth to Europe, died May 13, at his residence, 1413 N. 17th street, Philadelphia, in his eighty-fifth year. He was born in Lewes, Del., the son of the man who invented the first coal stove. At an early age he went to Philadelphia. In 1844, during the anti-church riots, he was standing alongside Colonel Pleasanton in that city, when the latter was shot but was saved from death by the bullet striking a silver dollar. In 1861 he drilled the Twenty-fifth Pennsylvania militia and was commissioned by Governor Curtin as lieutenant-colonel of the company, and in the early part of 1862 he and his men were ordered to guard DuPont's powder mills, at Camp

Brandywine. He organized the firm of Paynter, Oram & Armstrong, which was afterward formed into the now prosperous concern of Justi & Co.

Dr. Paynter was a direct descendant of Governor Hall, known as the revolutionary governor. He took a deep interest in mission work having been for a long time president of the Tract Missionary Society, and he was instrumental in founding quite a number of churches. For nearly twenty years he was a member of Memorial Baptist Church. Deceased is survived by a widow, three sons, and two daughters. One of his sons, Dr. G. Janvier Paynter, organized and is instructor in the department of morphology and dental anatomy in the University of Pennsylvania.

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#### DR. C. W. DORMAN.

Dr. C. W. Dorman, an old and highly respected dentist of Manchester, Iowa, died at that place May 21. Dr. Dorman had been in failing health for a number of years past. The beginning of his final illness was on New Year's day, 1899, when he suffered a paralytic stroke and an attack of nervous prostration. Two years later he suffered another attack and since that time had gradually failed in health, and during his last days suffered much pain.

For twenty-nine years Dr. Dorman had been a resident of Manchester and during that period he built up a large practice, and was held in high esteem by his neighbors. He was a native of New York state. His birth place was in Gilboa, Schoharie county, in that state, and the date, December 10, 1838. He was united in marriage with Helen F. Manchesier, March 27, 1864.

With the devoted wife, the following children are left to mourn the death of a kind and devoted father: Miss Eva, Oscar and George, of Manchester; Losee, of Clarksville; Charles, of Strawberry Point, and Jerry, of Peoria, Illinois. All of the sons are engaged in the dental profession.

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#### IOWA STATE DENTAL SOCIETY.

Report of Committee on Dr. I. P. Wilson, Deceased.

Your committee would report as follows:

Whereas, Since the last meeting of this society, death removed from us on the 9th day of March, 1904, one of our most honored and esteemed members, Dr. I. P. Wilson, of Burlington, we, as members of this society, wish to give this expression as to his

worth and character, and to the esteem in which he was held by this society and the profession of the state.

Dr. Wilson was an Iowa dentist, having come to the state from Ohio when about fifteen years of age, studied dentistry with Dr. Tullus, of Iowa City, and later graduated from the Missouri Dental College. He spent the whole of his professional life in Iowa, the greater part of which was in Burlington. For forty-one years he was a member of this society, being prominently connected with its early history.

Dr. Wilson was devoted to his profession, never being satisfied with present attainments, but constantly pressing forward, keeping abreast with the advance made by the profession. He always regarded this society as indispensable to his advancement.

As an instructor in the Dental Department, S. U. I., and later in the Keokuk Dental College, he endeared himself to the hearts of the students. He was pre-eminently the friend of the young men of the profession, and his influence was that of an honest, upright, professional Christian gentleman.

Therefore, Resolved, That this society hereby testify to the loss we experience in the death of Dr. Wilson, and extend our sincere sympathy to Mrs. Wilson and the family in their bereavement; that these resolutions be spread upon the records of this society; that a copy be sent to Mrs. Wilson and the family; also the dental journals for publication.

J. B. MONFORT,  
A. W. DANA,  
ANNA H. JOY,  
Committee.

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#### **DR. SANFORD J. BARTLETT.**

Dr. Sanford J. Bartlett, a dentist of Amenia, N. Y., died of heart disease while bathing in Silver Lake, Conn., May 29. He was twenty-seven years old. Dr. Bartlett and a friend, Mr. Sprague, had hired a boat and rowed out a short distance from the shore when Dr. Bartlett, who had on bathing clothes, dived overboard. When he did not come to the surface, Sprague jumped after him, but was seized with cramps and barely succeeded in making his own way back to shore. The body was recovered after several hours with grappling irons.

Dr. Bartlett's wife and Mrs. Sprague witnessed the tragedy from the shore of the lake.


**DR. WM. DEAN.**

Dr. Wm. Dean, of Lacon, Ill., died May 15. The deceased was born in Tremont, Ill., living there until he attained his majority. Perfecting himself in dentistry he located in Lacon, where in the many years of his residence he commanded the confidence and esteem of all.

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**DR. E. R. RUST.**

Dr. E. R. Rust of Denver died June 3 at Coronado Beach, Cal., after several weeks' illness. He was a wealthy retired dentist and the owner of a fine stable of blooded horses.



# REPORTS OF MEETINGS

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## SOCIETY ANNOUNCEMENTS

### NATIONAL SOCIETY MEETINGS.

National Association of Dental Examiners, St. Louis, Mo.,  
Aug. 25, 26, 27.

Fourth International Dental Congress, St. Louis, Aug. 20 to  
Sept. 3, 1904.

### STATE SOCIETY MEETINGS.

Georgia State Dental Society, Athens, June 28.

Indiana State Dental Association, Indianapolis, June 14, 15.

Maine Dental Society, Bangor, July 19, 20, 21.

Michigan State Dental Association, Lansing, June 28, 29.

Minnesota State Dental Association, St. Paul, June 16, 17.

New Jersey State Dental Society, Asbury Park, July 21, 22, 23.

North Carolina Dental Society, Morehead City, June 22-25.

Wisconsin State Dental Society, Manitowoc, July 19-21.

### NORTHERN IOWA DENTAL SOCIETY.

The dates of our annual meeting will be July 26, 27, 28, 1904, at  
Waterloo, Iowa. A good program is being prepared. Railroad  
rates can be secured at this time. Visitors welcome.

C. L. TOPLIFF, Secretary.

### ILLINOIS STATE DENTAL SOCIETY.

At the meeting of the Illinois State Dental Society, held in Peoria,  
May 10, 11 and 12, the following officers were elected:

President—C. N. Johnson, Chicago.

Vice-President—W. F. Whalen, Peoria.

Secretary—Elgin MaWhinney, Chicago.

Treasurer—Chas. P. Pruyn, Chicago.

Librarian—J. T. Cummins, Metropolis City.

New Members of Executive Council—G. E. Warren, Pontiac; O. L. Frazee, Springfield; C. E. Bentley, Chicago.

Chairman Executive Committee—M. L. Hanaford, Rockford.

Committee on Science and Literature—E. H. Allen, Freeport.

Committee on Art and Invention—J. H. Prothero, Chicago.

Supervisor of Clinics—S. F. Duncan, Joliet.

Local Committee of Arrangements—L. W. Skidmore, Moline.

Committee on Infraction of Code of Ethics—C. B. Rohland, Alton; A. J. Elmer, Rochelle; R. J. Cruise, Chicago.

Examiners—Edmund Noyes, Chicago; C. B. Sawyer, Jacksonville; T. F. Henry, Streator.

Ad Interum Committee—D. M. Gallie, Chicago; C. N. Johnson, Chicago; J. C. Reid, Chicago.

Committee on Necrology—Edmund Noyes, Chicago; C. R. E. Koch, Chicago; C. B. Rohland, Alton.

Publication Committee—Elgin MaWhinney, Chicago; T. L. Gilmer, Chicago; J. C. Reid, Chicago.

Editor of Transactions—Edmund Noyes, Chicago.

Forty-first annual meeting will be held in Moline, May 9, 10 and 11, 1905.

ELGIN MA WHINNEY, Secretary.

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### IOWA STATE DENTAL SOCIETY.

The forty-second annual meeting of the Iowa State Dental Society was held at Des Moines, May 3, 4 and 5, 1904. The following officers were elected for the ensuing year: President, J. V. Conzett, Dubuque; vice-president, J. B. Pherrin, Central City; secretary, C. W. Bruner, Toledo; treasurer, Mae Reynard, Osceola.

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### THE AMERICAN DENTAL TRADE ASSOCIATION.

The American Dental Trade Association met in annual session in St. Louis June 15-16-17. A small number of dealers were accepted as members. Election of officers resulted in practically the same members being chosen. The association endorsed the prospective law making any method of operation for replacement of a natural organ in the human body unpatentable.

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### THE NEBRASKA STATE DENTAL SOCIETY.

The Nebraska State Dental Society held its annual meeting at Omaha, May 18-19. The following officers were elected for the ensuing year: W. R. Smith, Pawnee City, president; F. R. Rose,

Omaha, vice-president; M. E. Vance, Omaha, recording secretary; H. T. King, Fremont, treasurer; R. H. Hatfield, York, corresponding secretary. The society will meet at Lincoln next year.

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### **THE SUSQUEHANNA DENTAL ASSOCIATION.**

The Susquehanna Dental Association adjourned May 21 to meet at Harvey's Lake and at Hazleton next year. The following officers were elected: President, George Luzemberger, Scranton; vice-president, O. H. Uhler, Allentown; secretary, T. W. Thomas, Wilkesbarre; treasurer, J. C. Hentz, Easton; financial secretary, George C. Knox, Scranton; executive committee, H. M. Beck, B. M. Carry, Wilkesbarre, and E. T. Donnegan, W. H. Fordham, Scranton.

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### **WASHINGTON STATE DENTAL SOCIETY.**

The following officers were elected at session of the Washington State Dental Society, at Seattle, May 29: President, R. S. Williams, Tacoma; first vice-president, C. A. Custer, Seattle; second vice-president, J. S. Balbridge, Sedro-Woolley; secretary, J. W. Rawley, Tacoma; treasurer, J. W. Downing, Spokane. The election passed off harmoniously, it is reported, nearly all of the offices being filled on the first ballot. The next meeting will be held at Tacoma.

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### **LEBANON VALLEY DENTAL ASSOCIATION.**

The following officers were chosen for the ensuing year: President, H. W. Bohn, Reading; vice-president, R. J. Wall, Harrisburg; recording secretary, H. J. Herbine, Pottsville; corresponding secretary, P. K. Filbert, Pottsville; treasurer, C. B. Wagner, Lebanon.

The next convention will be held at Pottstown.

A vote of thanks was tendered to the members of the Reading society.

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### **TENNESSEE STATE DENTAL ASSOCIATION.**

The State Dental Association, at its annual meeting May 26-27-28, elected the following officers for the ensuing year: T. D. Towner, Memphis, president; A. J. Cottrell, Knoxville, first vice-president; A. A. McClanahan, Springfield, second vice-president; C. A. Sevier, Jackson, recording secretary; R. Boyd Bogle, Nashville, corresponding secretary; W. P. Sims, Nashville, treasurer. Executive committee: R. McClure, Nashville; J. R. Beach, Clarksville, and R. M. Joyner, Union City. The next meeting will be held at Nashville.

**NATIONAL CAPITOL DENTAL SOCIETY.**

The National Capitol Dental Society was incorporated May 18, 1904. The society has adopted the Code of Ethics of the National Dental Association, and has a perpetual charter under the laws of the District of Columbia. There are nineteen charter members and twelve applicants for the next meeting.

The officers are: James A. Hunter, president; Wm. B. Daly, vice-president; Starr Parsons, recording secretary; Jesse B. Schafhirt, treasurer; Chester Beatty, librarian; J. K. Halley, corresponding secretary.

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**THE NEW HAMPSHIRE DENTAL SOCIETY.**

The New Hampshire Dental Society closed its three days' annual meeting in Concord, May 12, with the election of the following officers: President, A. L. Parker, Penacook; vice-president, William A. Young, Concord; secretary, F. F. Fisher, Manchester; treasurer, George A. Young, Concord; librarian, E. W. Moore, Newport; executive committee, B. F. Staples, Portsmouth, J. H. Worthen, Concord, Q. P. Shaw, Claremont.

It is learned that previous to final adjournment the society, in executive session, discussed freely the state board of registration, serious charges being made against W. R. Blackstone of Manchester, who recently retired from the board.

The officers of the society decline to make any statement in the matter for publication.





## *Recent Graduates From the Various Dental Colleges*

**Colorado College of Dental Surgery**—Frederick Sylsbee Barber, Fred Drew Royce, Harry F. Clingan, Claude W. Craine, Frederick A. de Laspinasse, Herbert Charles Dolph, Dana F. Edmunds, Benjamin F. Elliott, Harvey P. Greedy, Nicholas F. Crosjean, Frederick Chauncey Hannans, Fred C. Hunt, William A. Kerrison, Jesse Cromwell King, Ira Onis McCarty, Jasper Loren McDonald, Edward Ashton Owen, Lyndon P. Spann, James Albert Webb.

**New York College of Dentistry.**—Acker, Otto; Armstrong, Joseph Robert; Asch, Andrew Jackson; Bark, Arthur Waldemar; Baum, Eugene Samuel; Berlin, Simon; Berowicz, Isidore, Ph. D.; Betzig, Edward Peter; Burckhardt, Edward William; Cahen; Herman Bennett; Cohen, Abraham Bernard; Cohn, Moritz; Conzelman, Theophile; Curtain, James Joseph; Eisner, Samuel; Engel, Walter Frederick, M. D.; Epstein, Michael; Frank, John Peter; Gam, Jacob Albert; Getzoff, Samuel Max; Ginsberg, George; Glutting, Adam, Jr.; Goldstein, Alfred David; Goodman, Abraham, Herman, Ph. G.; Greenstein, Arthur Victor; Grosch, Charles; Haas, Charles Joseph; Halley, Henry Yetta; Harris, Albert; Holmes, Frank James; Kirschner, Bruno Waldo; Wocher, Herbert John; Kohn, Alfred Leitner; La Roche, Montgomery de Forest; Lubitz, Maurice Wilfred; Mencher, Morris; Miller, Irving Underhill; Neuwirth, Louis; Norris, Frank Wickham; O'Byrne, Edward Joseph; Oeder, Andrew Henry; Paymer, Edward; Polinger, Nathaniel Lazarus; Rhodes, Sydney Carton; Ritt, Adolph; Salomon, Harry, B. A.; Sax, William Irving; Sencer, Samuel; Singer, Emil; Smadbeck, Warren Jay; Spenadel, Henry; Startz, Louis; Swanson, Fritz Julius; Teichman, Robert Irving; Tompkins, Heman Ermo; Torrance, Walter Scott; Tyrrell, William Bell; Walker, Edwin Lew; Woodle, Jerome Milton; Wortmann, Joseph.

**School of Dentistry, University of Illinois.**—Abstein, Charles Eugene; Arnold, Elisha Melvin; Beringer, Eric; Berryman, William L.; Brady, George C.; Catterson, Lorace O.; Cohn, Israel; Converse, Albert Edward; Cooley, Vernon Penfield; Dobbs, Chester Coleman; Dickinson, Herbert Allen; Eckford, John; Fitzgerald, Edmund Richard; Fogle, Aaron C.; Freyer, Hedwig; Glenn, Edward Morrow; Gorny, William Albert; Granger, Frank Riley; Hobbs, Woodie Clay; Holmes, John; Hopkins, Lewis Warren; Hubbard, Herman Harry; Ireland, Thomas John; Jacobs, Charles Thomas;

Jones, George Arthur; Kenny, Edward, Jr.; Lee, Henry Cooley; Lichtenberg, Albert Bruno; Loesch, Charles M.; Longwell, John Carlton; Loynd, George Reuben; Lyon, George John; Mackinison, John Charles; Mahoney, William Daniel; McCormick, Ivor; McMaster, Oscar Fitzalen; McWilliams, William Henry; Moore, Franklin Benjamin; Murray, Joseph Lawrence; Ostermeier, George Albert; Peterson, Peter Christoffer Bronnum; Ramsey, Elmer Hugh; Richter, Evangeline R.; Rodenhauser, William Robert; Schulze, Elisabeth Louise; Sharp, Charles Byron; Sommerfeld, Oskar Emil; Stout, Louis Aurora; Vahue, Earl Orson; Van Voorhis, Fred Wilson; Vercoe, Ernest Wycliffe; Walsh, Richard M.; Welch, John D.; Wells, Samuel Scott; Wertzler, Charles Fred; Whitbeck, Frederick Ambrose; Wilson, George Henry.

### Philadelphia Dental College.

Wm. W. Alber, Maine; H. Anderson, New Jersey; C. Benj. Andrews, Pennsylvania; A. U. Arevian, Turkey; Harold J. Baker, New York; Alan R. Barnum, Connecticut; Joe. W. Bejser, Nebraska; Edgar P. Bell, Pennsylvania; James W. Bell, Canada; Oscar W. Bennett, New Jersey; Norman T. Benz, New York; Roy E. Block, Pennsylvania; Walter D. Bray, Connecticut; Wm. B. Brewster, Connecticut; L. W. Browne, Pennsylvania; F. J. Buchanan, Connecticut; C. A. Burbridge, Michigan; E. A. Callahan, Massachusetts; Angus Campbell, Canada; J. L. Cariaga, Bolivia; E. O. Clapp, Massachusetts; Samuel E. Carle, New Jersey; Earl D. Craig, Pennsylvania; R. M. Danforth, Massachusetts; E. McF. Dennison, New York; Ed. J. Dougherty, Pennsylvania; Harry Epstein, New Jersey; R. R. Ewald, Haiti; Jos. A. Farrel, Connecticut; F. C. Farrel, New Jersey; E. C. Fitzgerald, Pennsylvania; A. E. Franklin, New York; J. N. Gelson, New York; W. F. Good, Washington; W. N. Gunning, Canada; J. F. Haley, New York; M. H. Healy, Rhode Island; Wm. A. Hicks, Canada; E. J. Hinckley, Maine; S. F. Holaday, Iowa; O. C. Horandt, New Jersey; R. V. Hosking, N. Z.; F. J. Kenna, New York; J. H. Kenna, New Jersey; B. A. Kreidmann, New York; H. M. Krukenberg, Pennsylvania; M. H. Laity, Connecticut; J. F. Light, Massachusetts; A. S. Litten, New York; Wm. Lock, Pennsylvania; R. E. Macdonald, Canada; M. P. Madsen, New Jersey; H.-P. Massoth, New York; Rauld Masvidal, Cuba; W. H. Matthews, Pennsylvania; James Maurer, Pennsylvania; T. W. Mercer, Bermuda; G. E. Mix, Pennsylvania; J. J. Mulcahy, Connecticut; E. F. McCarthy, Connecticut; M. T. O'Brien, New York; T. F. O'Keefe, New York; C. E. Paige, Australia; W. O. Paul, Australia; George S. Peck, Pennsylvania; Chas. P. Phillips, Massachusetts; L. W. Platner, New York; J. M. Politzer, Pennsylvania; Morris Propper, Pennsylvania; C. Wm. Raith, New Jersey; B. Ramirez, Porto Rico; James P. Reid, Rhode Island; F. L. Roberts, Pennsylvania; F. P. Robertson, Canada; W. J. Robinson, Ireland; G. A. Schlichter, Germany; H. L. Sexton, New Jersey; F. A. Smith, Honduras; W. A. Spear, Maine; D. E. Speed, North Carolina; A. J. Stearne, Pennsylvania; S. S. Steinberg, Russia; G. N. Storm, Pennsylvania; B. F. L. Swarr, Pennsylvania; W. W. Swazey, Jr., Massachusetts; C. C. Timbrell, New Jersey; Sara V. Tomlinson, New Jersey; C. W. Trotter, Canada; Chas. R. Uhle, New Jersey; F. H. Van Winkle, New Jersey;

A. J. Vaugier, Massachusetts; E. Vidal, Porto Rico; C. C. Ward, Connecticut; D. C. Watt, Vermont; C. J. Weidknecht, Pennsylvania; R. E. West, Pennsylvania; George Wieser, Connecticut; S. W. Williams, Pennsylvania; C. H. Wolcott, New York; F. H. Wolverton, Ohio.

**Chicago College of Dental Surgery.**—Arthurs, Robert Samuel; Babcock, Lester Maxson, A. B.; Baird, William McCall; Bantz, Robert Lee; Barackman, William Garfield; Barlow, George H.; Bell, George Edward; Blodgett, Earl Edward; Branch, Corydon Ansel; Bricker, Frederic Albert; Britzius, Wesley A.; Brunet, Josaphat Louis; Buckley, Joseph Dawson; Budge, Franklin; Burckhalter, Henry Leonard; Burgess, George Francis; Buscho, William August; Chapman, William Harvey; Chase, Ellis Edward; Clark, Walter Thomas; Clunie, George Andrew; Cook, John Angus; Couger, Thaddeus Erle; Cruse, Roy James; Denney, Andrew Irvin; Derickson, Hiram Alvin; Dexter, John Victor; Dick, Carl Otto; Dixon, Ralph Harvey; Douglas, Ezra King; Eckel, Samuel; Ervin, Loren Eugene; Estock, Frederick Alexander; Follett, George Albert; Fox, Michael Gregory; Fulton, Joseph; Gallagher, Miles Heraty; Gift, John Robert; Gilmer, William Samuel; Gould, Samuel Chauncey; Harding, Lewis Henry; Hermon, Charles Davis; Harmon, James Benjamin; Harris, Edward Ewel; Hautsch, Frank Alexandra; Hewitt, William Henry; Hine, Walter Gerald; Hinman, Ralph Burritt; Hirscher, George Alois; Hodson, Robert Edward; Hooreman, Jacobus Martinus, M. D.; How, Frank William; Huffman, Charles Lloyd; Hunter, William Horace; Hyland, Leslie Dana; Irving, Arthur Edward; Iversen, Justine Clement; Ivey, William Le Roy; Jackman, Clarence William; Johnson, Norman Emmert; Johnson, Edwin Clair; Joyce, Francis Patrick; Kelley, Edward John; Kennedy, George Lorne Shields; Kieweg, Walter Wenzel; Lerche, Peter Andreas; Lewis, Earl Willis; Libbey, Charles Howard; Liedl, Eugene Anthony; Liepart, George Hampson; Liggitt, Robert Everett; Liken, Clyde Thomas; Limacher, John Anselm; Lindley, Samuel Elmer; Loomans, George William; Lucas, Robert Francis; Luton, Leonidas Irvin; Lyman, Otis Arthur; MacArthur, John Elliott; Macdonald, Roy Stuart; MacKechnie, Neil J.; Magnuson, Edward Charles; Maher, Daniel Arthur; Martin, Archibald Alexander L., D. S.; Martin, Charles Edward; Maynard, Charles Henry; Maypole, Alexander Montrose; McCarter, Alexander; McMahon, Mark Thomas; McRae, Charles Alfred; Melaiik, Naseef; Michener, Roy De Lacey; Molseed, Lewis Edward; Morgan, Ernest Rufus; Movius, William Godfred; Nannestad, Sverre Holm; Nauman, Bernard; Nerud, William Leo; Newhouse, Fritz Valentine; Norwood, Benjamin Ira; Orr, Hal Nelson; Page, William Edwin; Pashley, Raymond Robert; Perisho, Virgil Pearlee; Paul, Charles Henry; Phinney, John Hardin; Pickard, Edward Charles, L. D. S.; Plankerton, Hale A.; Quinlan, James Louis; Raubolt, Walter Frederick; Richards, Francis Evan; Rietz, Arthur Reinhard; Robinson, Earl Clayton; Runkle, Lawrence Karrel; Ryan, Edward Pressley Rhea; Sayler, Jay Vernon; Schmitz, Mathias Leonard; Senesac, John Baptist Hubert; Sharpe, Willard Parker, Jr.; Shaw, Frank Webster; Snider, Kester Warren; Steele, George Hoxie; Steinback, Peter Engwald; Stewart, Isaac Perry; Stott, Hubert William; Stratton, George Allen Samuel; Strom, Eu-

gene Frederick; Sutton, David James; Sykes, Harry Edward; Thomas, Daniel Preston; Truitt, Theodore William; Turner, John Gottfrid; Van Buskirk, Earle Jay; Van Alstine, Elliott; Voss, Albert Edward; Waldron, James Edwin; Walker, William Brisben; Walser, John, Jr.; Wareham, Leslie Vernon; Webber, Shirley Thomas Burgh; Wege, Philippus Albertus Myburgh; Whittaker, Howard Fleckser; Worstell, Everett Crumly; Wright, Charles Lewis; Young, Elbert Clifton.

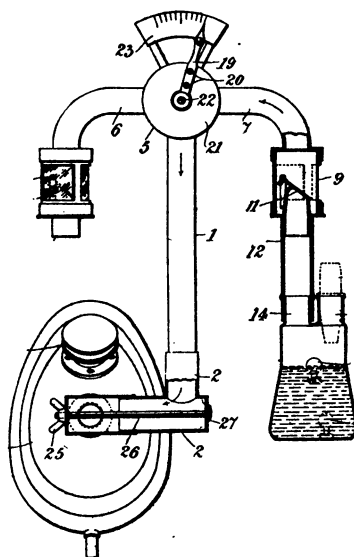
**Northwestern University Dental School.**—Abbott, Florence Ethel, Miss; Abernathy, Thomas DeWitt; Bachmann, Albert John Andrew; Bartsch, Frederick George; Bay, George Phillip, Jr.; Bean, Miss Mace; Beart, Leslie Fosbrook, Charles; Beckett, John Marcus; Best, Walter Thomas; Bohrer, John David; Boysen, Harry Alvin; Branstad, Henry Oswald; Bronson, Almon Edson; Brosnihan, Fred Hugh; Burgson, Clarence Edward; Burke, Gordon Leigh; Cannon, Joseph George; Carlile, Walter W.; Carlton, Robert Emmett; Carter, Roy Millard; Cecka, Joseph Benjamin; Chandler, Edward Ten Eyck; Chapline, William Edward; Clark, Henry Bannister; Clark, Irving A.; Creeden, Timothy Joseph; Currier, Guy Raymond; Davis, Guilford Banning; Dearborn, Miss Helen Towle; Denning, Roy Joseph; Devlin, William; Dillon, Harry D.; DeBois, Leon LeRoy; Dunlop, Harry Parker; Enerson, Charles Milton; Fallis, Robert Wilson; Fansett, Oren Frederick; Fitzgerald, Emerson Goldfred; Ford, John Alexander; Galbreath, Merritt Eugene; Gale, Frank Willis; Gale, Melvin Edwin; Gaus, Julius John; Goggin, John William; Gouse, Marcus Wesley; Gray, William Joseph; Grayston, Hayden Boston; Greenwood, Alexander Samuel; Guest, Henry Quincy; Hagerup, Myron Francis; Hamilton, Baker Aaron; Harpole, Homer Jackson; Harris, Bert Alferd; Harris, Madison Curtis, A. B.; Harrison, William Leonard; Harsch, Benjamin Theodore; Haviland, Holmes Weston; Heck, Eli George; Heidel, Franklin Edward; Hesse, John Lewis; Hill, Thomas Bruce; Hines, Frederick Worth; Hoag, Arthur Edwin; Hooley, Leslie Ernest Arthur; Hopper, Archie Bertel; Horn, Clarence Mell; Hospers, John Henry, A. B.; House, Edwin Benson; Huff, Ralph Thomas; Humphrey, John Holman; Hurd, Hugh Chester; Johnson, Harry Milton; Jones, Roger Theodore; Kelly, John Joseph; Laign, Edward Arthur; Lamm, Philip Forsyth; Laughlin, James Rowland Leakey, Eustace Porrit; Leavitt, Mae Burton, Mrs.; Lietzmann, Charles Herman; Long, James Burgess; Loofboro, Erlow Bliss; Love, Dorance Timothy; Low, Roy James; Lux, Walter Garfield, B. S.; McClenahan, Frank Clifton; McCowen, Eugene Percival; McCumber, Clyde Isaiah; McIntyre, James McAdam; McQuillen, Edward; Macdonald, Norman Arthur; Madison, George Addison; Makolm, John Lyle; Marr, Glenn DeMotte; Mathews, John Lewis; Miller, Miss Jennie Louise; Miller, Orlen Jacob; Mittan, Wesley Clarence; Mohan, Joseph Conness; Moreau, Joseph Henry; Murray, Benjamin Alder; Olsen, Frederick Andrew Haaken; Ostrander, Bunyan Warwick; Patton, Ernest William; Perry, Charles Elfred; Pierce, James Samuel; Pottle, Lovejoy; Printz, Merle Mayo; Rand, Thomas Henry; Rasmussen, Alfred Theodore; Richardson, Robert George; Rimmer, Walter Harcourt; Robinson, William Joseph; Rossteuscher, Edwin Ralph; Sauer, Raymond Julius; Saunders, Howard Bond, B. S.; Schofield, Herbert

Shaw; Scholler, Daniel; Schröder, Miss Maria Margaretha; Schuler, Arthur Edward; Schwartz, Bernhardt Frederick W.; Shirk, Benjamin Bear; Shumway, Herbert Garfield; Simms, John Dorris; Slick, Albert Benjamin, B. S.; Sluss, Frank LeRoy; Smith, Edgar Wilson; Smith, James Perrie; Stalland, Martin Christian; Swartout, Benjamin; Teskey, Edward Luke; Thompson, George Patterson; Thorpe, James William; Thorson, William Julius; Tilden, Morton Cranage; Tracy, Robert Francis Walter; Treise, Walter Elbert; True, Harry Albert; Van Deusen, Harry Morehouse; Van Sant, Ralph Newton; Van Tuyl, Harry Isaac, B. S., M. D.; Watson, Meredith; Werner, Frederick Harold; Weterer, Frederick Jacob; Whorton, William Franklin Roscoe; Wiese, Charles Arthur; Williams, Evert Velie; Williams, Hugh Richard; Wilson, William Knox; Wise, Harry Augustus; Wiswall, Willard Jason; Wood, Bertram Guy; Wood, John Adam; Grinde, Seward Clarence; Holmin, Oscar Renus; Grove, George Carlton; Sawyer, Emerson Robert Richard.



# DENTAL PATENTS

759,369. Apparatus for administering anesthetics. Augustus G. V. Harcourt, Ryde, Isle of Wight, England, assignor to John J. Griffin & Sons, Limited, London, England, a corporation. Filed Dec. 29, 1903. Serial No. 187,009. (No model.)



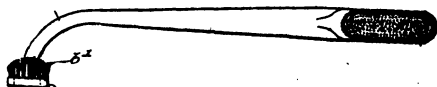
Claim.—1. In apparatus for administering anesthetics the combination of a main tubular stem, a face-piece connected thereto, branch pipes communicating with said main stem, valves in said branch pipes, a vessel for containing an anesthetic connected with one of said pipes, and a distributing valve, located between the branch pipes and their respective valves, for regulating the supply of the anesthetic.

759,498. Art of filling teeth. Eduard Bösch, Geneva, Switzerland, assignor to P. A. Kolliker & Co., Zurich, Switzerland, a firm. Filed Jan. 26, 1903. Serial No. 140,569. (No model.)



Claim.—1. The method of filling teeth, which consists in taking an impression of the cavity to be filled, making a mold from the impression so taken, molding the filling, fixing an anchor in the filling and anchoring the filling in the cavity of the tooth, substantially as described.

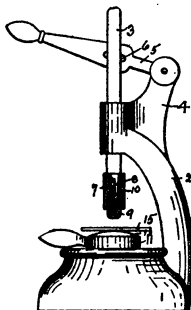
760,047. Tooth-brush. James H. Wilson, Lowell, Mass. Filed June 15, 1903. Serial No. 161,433. (No model.)



Claim.—1. A tooth-brush comprising a brush-head and a handle, curved or bent near one end to meet the brush-supporting surface of said head and secured at said end to said surface.

2. A tooth-brush comprising a brush-head including a back having a face, provided with a brush device, and a handle curved or bent near one end to meet said brush-provided face and secured to said face at an angle therewith.

760,050. Dental swaging-machine. George B. Wortman, Massillon, Ohio, assignor of one-half to George E. Furbay, Canton, Ohio. Filed Nov. 19, 1903. Serial No. 181,763. (No model.)



Claim.—1. In a dental swaging-machine the combination of a die-bar located in a guide-frame and having pivotally attached thereto a lever, said lever located at the upper portion of the die-bar, a thimble attached to the lower portion of the die-bar, and an elastic die connected to said thimble, a matrix formed of a size in cross-section greater than the size of the elastic die, and the matrix located below the die-bar and below the normal position of the elastic die all arranged, substantially as and for the purpose specified.

760,295. Process of obtaining correct dental impressions. Willis E. Allen, Honolulu, Hawaii. Filed Sept. 21, 1903. Serial No. 174,061. (No specimens.)



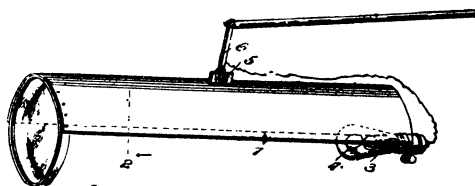
Claim.—1. The herein-described method of obtaining correct dental impressions, consisting of placing modeling material on trays, fitting the material by pressure to the palatal arch and teeth-ridges of the jaws, forming a series of depressions in one of the impressions, and softening the surface of the other impression, prior to causing the patient to "bite," whereby the act of closing the impressions together forms counter projections on the impression opposed to that having the depressions, for the purpose specified.

760,397. Dentifrice. Edward C. Kirk, Lansdowne, Pa., assignor of one-half to William James Evans and Eustace Harold Gane, New York, N. Y. Filed Oct. 31, 1903. Serial No. 179,287. (No specimens.)

Claim.—1. A dentifrice composition consisting of calcium dioxid and an abrading powder, substantially in the proportions and for the purpose herein specified.

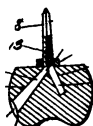


758,741. Dental lamp. Hiram E. Dunn, Warren, Ohio. Filed July 2, 1903. Serial No. 164,076. (No model.)



Claim.—1. A dental lamp having an open-bottom hood of cylindrical formation and a lens supported by such hood at one end thereof, as set forth.

758,750. Artificial denture. Oliver C. Haldeman, Upland, Neb., and John R. Haldeman, Independence, Mo., assignors, by mesne assignments, to Haldeman Porcelain Crown Company, Kansas City, Mo., a corporation of Missouri. Filed Sept. 19, 1902. Serial No. 123,984. (No model.)



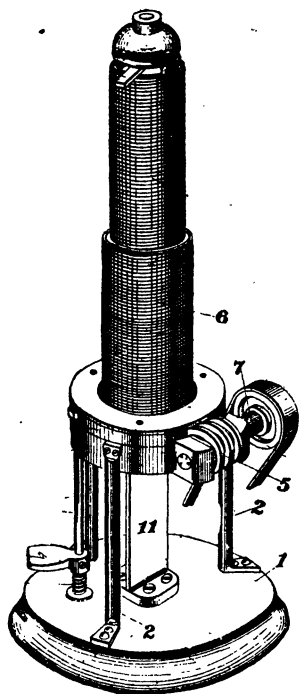
Claim.—1. An artificial denture comprising a crown provided with diverging channels, one of which has a flaring end, an anchor consisting of two members and which is separable from the crown, means for securing the members of the anchor together and to the crown, and diverging portions at one end of the anchor adapted to snugly fit the channels in the crown, substantially as described.

758,764. Tooth-brush. William A. Macleod, Boston, Mass. Filed Dec. 21, 1901. Serial No. 86,730. (No model.)



Claim.—1. A bristle tooth-brush having a handle which is substantially firm or rigid, but which is adapted to yield under a moderate pressure transmitted through the same, substantially as described.

759,189. Dental or surgical chair. Luther T. Parsons, Princebay, N. Y.  
Filed May 14, 1903. Serial No. 157,090. (No model.)



Claim.—1. In a power-driven dental or surgical chair, the combination of two cylinders, the one adapted to telescope into the other to lower the chair to its lowermost position, means actuated by the driving power for elevating the two cylinders simultaneously to raise the outer cylinder to its uppermost position and the chair to a position intermediate between its lowest and highest positions, and means actuated by driving power for clamping the outer cylinder in its said uppermost position and for automatically elevating the inner cylinder alone, to raise the inner cylinder and the chair to their uppermost positions.

## PERSONAL AND GENERAL

**Robbed.** — The office of R. M. Barry, a dentist in Oswego, N. Y., was robbed on the night of May 13; loss, \$15.

**Office Robbed.**—A sneak thief entered the office of Dr. C. W. Thomas, the Rochester dentist, and carried off about \$20 worth of gold.

**Married.**—Dr. John Henry Stireman of Redwood City, California, to Nettie Mildred Schnabel of Newcastle, at the latter place June 1st.

**Robbed.** — J. L. Frayeur, a dentist in Fort Worth Texas, suffered the loss of gold and other material to the extent of \$50 on the night of May 23 through burglars.

**Good Location.**—The Middletown correspondent for the Peoria Evening Star is responsible for the statement that a permanent dentist would "do well" in that town.

**Will Preach.**—S. J. Baird, a well-to-do dentist of Warren, O., has given up his practice to preach the "New Thought" religion. He will go to Pittsburg and open a branch for the teaching of the new religion.

**Thieves Rob Dentists in Syracuse.**—Gold worth \$50, used for filling purposes, was stolen from the offices of R. L. Hamilton and J. E. Cummings, dentists, May 13. The police believe both jobs were done by the same person.

**Burglars at Cincinnati.**—Professional cracksmen made the rounds of the dental offices in Cincinnati on the night of May 21, making good hauls and visiting many places. Among the number robbed were Drs. C. N. Bradford, J. R. Johnson and C. W. Niedhamer.

**Married.** — Dr. Walter Cain of Idaho Springs, Col., and Miss Alice Casey of Beloit, Kas., were married June 4. The ceremony was performed by Father McCabe of Idaho Springs. The bride is the daughter of one of the prominent bankers of Beloit, and Dr. Cain is a dentist at Idaho Springs.

**Dentist Missing.**—N. E. Dickey, a dentist of Converse, Ind., is strangely missing. He left his office, leaving a note saying he would be back in ten minutes. He had a large practice and many friends. Since leaving numerous stories have been circulated concerning him.

**Injured.**—L. Caldwell, a dentist of Birmingham, Ala., narrowly escaped death and was seriously injured May 21 by being struck by a number of brick which fell from a building under course of construction. He was rendered unconscious and suffered several scalp wounds and numerous bruises.

**Fire.** — The dental office of Dr. John M. Spanogle at Altoona, Pa., was damaged by fire to the extent of \$100 May 28. Dr. Spanogle had gone out a short time before, leaving a gas jet burning. A large curtain which separated the operating room from the laboratory was blown by the breeze from the open window to the flame, and in an instant was all ablaze, the flames quickly communicating with other inflammable matter in the workroom.

**American Dentists in Berlin.**—It will be a supreme test of love for the Fatherland if the German people respond to the appeal of the Berlin dentists not to patronize those of their profession who have graduated from American dental colleges. A man who would let a bungler "mónkey" with a jumping tooth because a skilled dentist had a foreign diploma has capacities for heroism that would put the first soldier of the Kaiser to the blush. —Exchange.

**Another Sherlock Holmes Case.**—The dental office of Dr. Charles Parker of Norfolk, Neb., was entered and robbed of gold. The loss was heavy in a financial way. The only clew to the burglar was the thumb mark upon a nickel-plated pair of forceps. The mark of the thumb bore a scar shaped like the letter "A." Chief of Police Kane later located Rogey in a saloon, taking a drink. The scar on the thumb was distinct, and the prisoner has confessed to the work.

**Dentist Fined.** —Judge Kennan imposed sentences May 13 on the first four dentists convicted in Seattle, Wash., for practicing without a license. E. J. Brown was given the maximum fine of \$200 and costs; Littroy, Sexton and Rimmer were fined \$100 and costs. W. E. Harrison, an employe of Brown, pleaded guilty without being tried and was fined, but sentence was suspended providing he ceased to practice until properly licensed. The dentists of the state are still waiting for the decision of the Supreme Court as to the dental law.

#### **Gift of a Gavel for Illinois Dental Society.**

Dr. L. W. Skidmore received from his brother, Dr. Wallace Skidmore, in Manila, a handsome gavel, which was presented to the Illinois State Dental Society at its meeting at Peoria. The gavel has an ebony handle and mahogany head, and a silver plate inscribed is inlaid in the latter, indicating the gift by Dr. Skidmore as corresponding member of the society from the Philippines. The gift came in a box of unpolished mahogany, which will be developed there before presentation.

**Dentist Sues Pickling Company.**—Dr. A. C. Barr, an Anton, Mo., dentist, has filed suit in the Circuit Court against an Eastern pickling company for \$1,999 damages. Dr. Barr charges in his petition that after the member of his family had eaten the contents of a jar of pickles put up by the defendant company he discovered what he alleges to be the first joint of the thumb of a man, which was probably lost by an employe of the company while the pickles were being put up. The substance is being kept by him, and will be used as evidence in the trial.

**A Peculiar Verdict.**—An interesting complication may result from a decision of a jury in a suit for damages in New York City. The plaintiff, a woman, brought suit against her dentist for \$5,000, alleging that the gold filling was not satisfactory, and that when she refused to pay for it the "doctor" insisted on pulling the tooth, which he did. The jury decided that she was not entitled to damages, and the inference is, therefore, that the dentist was entitled to the possession of her tooth containing the gold. If all the teeth had been in litigation the dentist could have tied her in his chair and knocked them all out. If a surgeon should sew up a finger and the operation should not be paid for the surgeon would be permitted to chop off the finger. The doctor would be entitled to the possession of the child he had saved from disease, and the man with two legs would have to part with the one that was saved by the practitioner's skill.

The question is one that concerns the general interests of the world, including the meal ticket that is bought and not paid for, the jewels which have been presented by the penniless lover, the box of candy which is "charged" by the fair daughter, and a score of embarrassing instances where now the embarrassment is all on the side of the credulous creditor. If the New York woman has established a precedent which will soon be widely recognized, it is a pity that somebody does not back her in a proceeding for assault and battery lest this enterprising dentist's methods disturb the world's economic peace.

**Loss of Hearing Due to Wisdom Tooth.**—The joy of losing an aching wisdom tooth and regaining the hearing of her right ear in one operation has come to Miss Louisa Fischer of No. 1674 Madison avenue.

To-day, instead of sailing for Bremen to consult eminent aural specialists about her deafness, she will take a train for St. Louis to be at the opening of the fair and celebrate her deliverance.

Miss Fischer is a musician. She lost the hearing of her right ear a year ago and suffered intensely from pains in the ear. She could neither play nor sing, and her life was made miserable. She went to aural specialists, but all of them shook their heads and gave her no hope. They advised that she go to Bremen. So distressed was she that she decided to undertake the long trip and test the slender hope they held out to her. She engaged passage on the Belgravia. Trunks were packed and everything was in readiness.

As a last thought she dropped in on a dentist only two doors away to have him attend to her teeth. She told him about the troublesome wisdom tooth that jumped and jerked at all hours of the day and night.

"Pull it," he said. She consented and out it came.

"Why, the pain in my ear is gone!" cried the astonished girl as she got up from the dentist's chair.

She went home to finish preparations for her departure. The noises in the street were no longer muffled, her own voice was clear and distinct again. She sat down to the piano and once more felt the joy of listening to harmonized notes that came clear and strong.

She was no longer deaf. The girl ran back to the dentist when she at length realized what had happened. Dancing for joy, Miss Fischer decided on the spot to give up her trip to Europe.

"I will celebrate my deliverance by going to St. Louis and hearing the band play," she decided.—New York World.

**Viscount D'Oyley Shot.**—Yvon Evans, known as Viscount D'Oyley, a son of the American dentist, Dr. John Evans, died May 26 at a private sanitarium as the result of a bullet wound received under mysterious circumstances. The family is somewhat prominent, Dr. John Evans being a nephew of the late Dr. Thomas W. Evans, who assisted Empress Eugenie in her flight from Paris after the Franco-Prussian war. Dr. John Evans, who came from Baltimore, received the title of the Marquis D'Oyley from the Pope, his older son assuming the title of Count D'Oyley and the younger that of Viscount D'Oyley, by which they were generally known.

The younger son, who was twenty-four years old, recently became enamoured of Mme. Pflucker, a Peruvian, who was sojourning at Vichy. Despite the protests of his family, the viscount and the Peruvian visited the Riviera together, remaining at Cannes for some time. Dr. Evans energetically protested against his son's course, and finally cut off his income. This brought the couple back to Paris, where they arrived a week ago, going to the Hotel de Rivoli.

At 5 o'clock on the evening of May 21st a shot was heard in the chamber of the viscount, and when the proprietor of the hotel reached the chamber he found the viscount on a bed with a wound in his left breast. Mme. Pflucker, who was in the room, said that the viscount had shot himself, and, although weak from loss of blood, the wounded man seemed to confirm this statement, saying that the shooting took place while he was handling a weapon.

He was taken to a private sanitarium, where an operation was performed. Mme. Pflucker remained constantly at his bedside.

Viscount D'Oyley became unconscious and lingered until May 26, when he died. The police began an investigation, which brought out the foregoing facts.

Mme. Pflucker was examined by the police, and later was provisionally released, but was told to hold herself at the disposal of the authorities. She bears out the theory of suicide by showing two letters which Viscount D'Oyley had addressed to the authorities, stating that it was his intention to commit suicide, owing to family difficulties.

The body was taken to the morgue for a post-mortem examination.





## **PROSTHETIC DENTISTRY.**

**By B. J. Cigrand, B. S., M. S., D. D. S.**

**(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois.)**

### **CHAPTER XVI.**

In the previous description I outlined my method of making a gold inlay by the ribbon method. In this article I will sketch the use of gum camphor and its use in the production of simple saucer or bowl shaped cavities, such as are usually found on anterior teeth at the cervico-labial portion. In fact, this class of cavities is prevalent in patients suffering from the abuse of medicines. The use of the camphor method is limited to shallow saucer-shaped cases. The method was evolved by Dr. Allen, though Dr. Taggart was the first to bring it to our notice. The results of this simple way of producing an accurate tight-fitting matrix is remarkable. (Figures 1 and 2.)

Anneal your gold (36-gauge) and lay same over cavity in the natural tooth. Place a small piece of camphor over the same and with spatula-shaped burnisher press the camphor. This will depress the pure gold to adapt itself to outlines of the cavity. Then use ball-shaped burnisher and with firm burnishing, the matrix is soon complete. The peculiar features of the camphor admits of the process of pressure and at the same time has the tenacity of holding the pure gold to the position where it has been burnished. (Fig. 3.) It is marvelous the excellent results one can get by this simple device. The camphor must be pure and must possess the gum and oily quality—hence the camphor must not be exposed, as it is a volatile oil and becomes very dry on exposure.

The matrix after completely formed is taken from the tooth and freed from its bed of camphor. The camphor is readily eliminated; hold the matrix over Bunson burner and the camphor quickly burns out, leaving the gold matrix clean and prepared for the gold filler.

Many dentists advocate the use of filings and scraps for the "filler," but this is a mistake, since the inlay when complete does not glisten as does a gold filling, and the primal feature of a gold inlay is to appear and serve as a gold filling—hence the filler must be made of gold pellets and high fusing gold solder.

The gold inlay is coming to the profession in a manner which indicates its value in certain special cases. We must save teeth more by the use of the gold inlay. This method of tooth restoration and preservation is too little appreciated. I fully agree with these good words of Dr. Head:

"In approximal cavities so situated that the filling does not show, or where great resistance to the blows of mastication is necessary, the gold inlay is usually to be preferred. Its sole objection is the fine line of cement that connects it with the cavity-walls; but if the gold inlay is properly prepared, burnished, and finished, the line of cement may be rendered so microscopic as to become practically no longer a source of danger. In other respects the gold inlay, when not visible, approaches very nearly the requirements of the ideal filling, having perfect resistance to mastication, power to preclude the growth of bacteria, non-conductivity of heat, ease of manipulation, firm adherence to cavity-walls, and an adaptation not usually so destructive to tooth-structure as is the ordinary insertion of a gold filling."

I have for some time busied myself in the hope of finding a method whereby gold inlays could be produced without the employment of a matrix of either gold or platinum.

This class of inlays belongs to the occlusal and buccal kind, where we can get parallel and complete wall surface. I prepare the cavity the same as for my ribbon inlay—Figures 1 and 4—(described in Chapter XVI). The outlines of cavity can be seen in Figure 1. I then take the leaf gold which is used for gold fillings, fold it in a manner yielding a cylinder about the size of a slate-pencil (Figure 15). I roll the gold in thin silk camphorated paper and clip the cylinder into small pellets of such length as the cavity indicates, leaving pellets extending about one thirty-second of an inch. I then insert a pellet (Figures 5 and 6). I next flatten the pellet of gold laterally, using McMillen's method of inserting a gold filling. In inserting the next pellet I add gum arabic and continue to add the small cylinders of gold until cavity is filled, as Figures 7 and 8 show.



Between each cylinder I add the gum arabic. This is employed to hold the cylinders tightly together without heavy pressure or malating. Then with a ball burnisher (Figure 3) adapt the margins and with a barbed "lifter" you can easily remove the pure gold inlay. You then flow a low gold solution on the acclusal surface and the

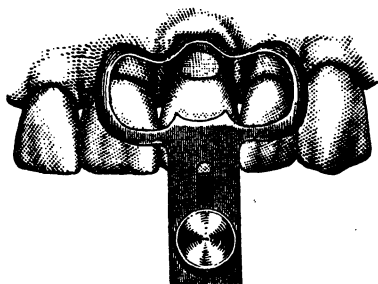


Fig 1

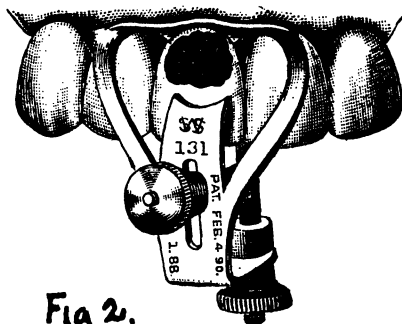
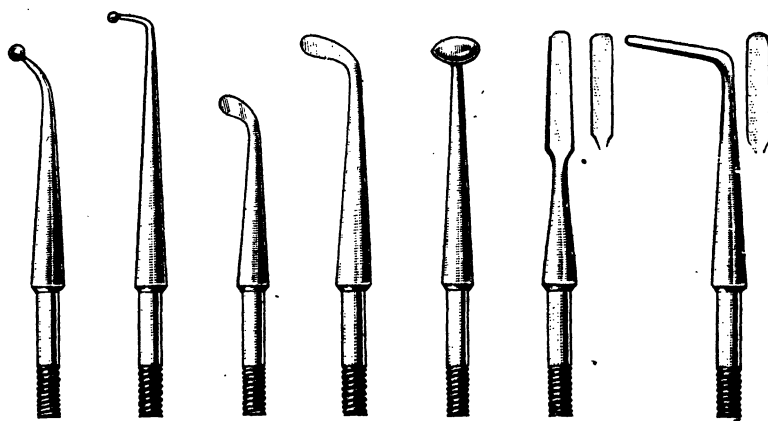


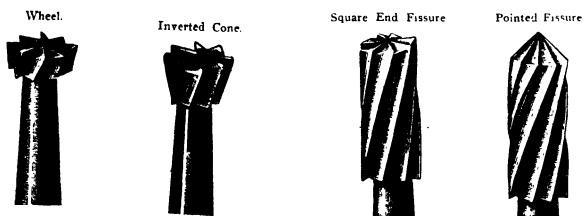
Fig 2.



gold solder quickly knits the entire mass, the camphorated silk paper burning out and substituted by gold solder.

In the molars, Figs. 9, 10, 11, 12 and 13, the same method is employed. It may be that I am advocating the gold inlay too pronouncedly, but my present successes lead me to earnestly advocate their use, since they are tooth preservers and health preservers—this latter qualification relates especially to the operator.

If you are fearful that the solder may disturb the external or wall surfaces apply gum arabic and then coat the external surfaces by applying strip of gold leaf; then invest the inlay in plaster and pumice or time sand, and after thoroughly drying the case flow the low fusing solder. The character of the solder has much to do with the finished appearance of the inlay, hence use only such solders as have the shade of pure gold as in fillings. If this precaution is observed the finished product will be similar to the gold-filled cavity.



A solder of gold for this method of inlays is as follows:

Gold coin .....	6 dwt.
Pure silver .....	30 grs.
Pure copper .....	20 grs.
Brass .....	10 grs.

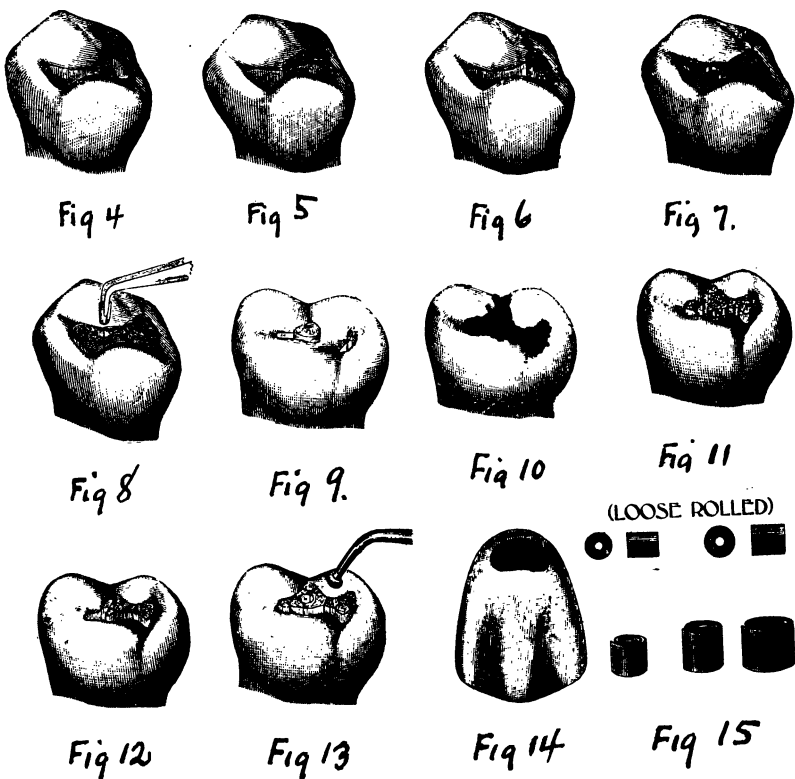
The fact that you have built the body of the inlay with pure gold foil permits you to use the above low fusing solder and admits of a high finish.

Dr. W. N. Murry of Minneapolis makes the following commendation on the gold inlay. This quotation is inserted to induce others to appreciate that the profession at large does not as yet recognize the great merit of the gold inlay. The doctor's remarks on this subject read:

"I do not wish to detract from the value of any of the present filling materials now in use, neither do I, but I say most emphatically that I wish to enter a vigorous protest against the wholesale sacrifice and indiscriminate cutting down of valuable teeth and trying to save them with badly fitting crowns, thereby inviting disease and the loss of these valuable dental organs sooner than they otherwise would, had other methods been resorted to. Where can the gold inlay be used to advantage, or where do we feel with our experience the usual filling materials are inadequate? With the results that I have obtained with this method, I shall answer this question.

"First.—I shall never fill with gold again a devitalized molar or bicuspid, because I know that the gold inlay is far more permanent, the frail walls that from the force of circumstances exist in nearly all of these cases can be better protected with the gold inlay than with any gold filling that can be placed in them.

"Second.—In all upper and lower, second molars, distal cavities, I shall place the gold inlay, because I think that the same relative amount of skill that must necessarily be used to insert gold fillings in these cases, were it expended upon the inlay, would be productive of better results and be less enervating to the operator and the patient.



"Third.—In children's teeth, where parents demand gold. The ease and permanency with which these cases can be handled has astonished, pleased and been a source of satisfaction, both to the parent and myself.

"Fourth.—There are aged people who come under our care with teeth much loosened by the ravages of time and disease, and it is a peculiar fact that in our experience we find that most of these cases personally demand the highest class of dentistry. The longer they keep their teeth the stronger they seem to become attached to them. It would be almost a suicidal policy to attempt to mallet gold fillings in this class of teeth. The inlay can be used in these cases and proves a boon both to the operator and the patient."

## OPERATIVE DENTISTRY.

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
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## CHAPTER XV.

## TIN AND GOLD AS MATERIAL FOR FILLING TEETH.

While tin is a metal of considerable antiquity, being mentioned by Moses more than 1,500 years before Christ, its use as a material for filling teeth seems to have been not much earlier than about 1780 A. D., mention being made of its use in England in 1783 by Mr. Sigmond of Bath in his book entitled "A Practical and Domestic Treatise on Teeth and Gums."

In the time of Pliny it appears that the Romans did not realize much of a distinction between tin and lead, the tin being termed *plumbum album*. The mines at Cornwall, England, the greatest and oldest known, seem to have supplied the ancients as well as being the principal source of supply for the enormously multiplied industries of to-day.

Of the several commercial varieties Banca tin is the purest; it is almost chemically pure. Only this pure tin is suitable for filling teeth. It is employed principally in the form of foil, though a crystalline or spongy form has been used to some extent. The conductivity of tin is much less than gold (about three-fourths less) which is one of the features of its desirability in many cases as a filling material. Pure tin has a malleability that permits of its being beaten into leaves less than three thousandths of an inch in thickness, but is more difficult than gold to so manipulate as it has not the tenacity of gold.

Tin is unquestionably cohesive in its pure state, but not as readily so as cohesive gold. • More so, however, than so-called non-cohesive gold. The working qualities of tin are very much like soft or non-cohesive gold, being softer indeed than gold, yet cohesion takes place without that stiffening up that is peculiar to gold of a cohesive quality. In consequence, it is much more easily manipulated in larger ropes, rolls or pellets, and much more adaptable in such quantities to the walls and inequalities of the cavity. On account of this and its non-conductivity and its well-established therapeutic properties—persistent as an antiseptic—it is held by many of the best dentists everywhere to be one of the best substances we have as a preservative filling for decayed teeth; and especially for children's

teeth. Its endurance against the wear and tear of mastication, however, and its color in instances of exposed locations precludes its use to the extent it is otherwise worthy of. Many operators, however, place a layer of tin in the bottom of every cavity where it can possibly be consistently done, and make large occlusal cavities mostly of tin, over which gold is placed for the better color and durability as concerns wear.

In some mouths tin will remain reasonably bright, but in most mouths it oxidizes and becomes black, and in consequence, where it is used as a foundation for gold, it should not in exposed places be allowed to extend to the margins or surface; neither should it be used against walls where the discoloration would show through. A lining of oxy-phosphate cement would be better in such a case at the point referred to even if tin is used over it.

Many operators use tin as a marginal base in all proximal cavities in bicuspid and molars, as it seems to better insure against recurrence of decay at that vulnerable point. A combination of tin and gold is also used in alternate layers—a leaf of tin and a leaf of gold folded or rolled together—for the same purpose. In fact the combination of tin and gold is preferred by many to the tin alone for whole fillings, the combination making a gray sort of color, which, however, has the fault of turning black in certain places. All that is claimed for the combination of tin and gold in whatever proportion or variation it is used is met in tin alone except that tin and gold is harder than tin alone and does not discolor quite so much. Conductivity is increased in proportion as gold is combined with tin, but of course it is a good deal below that of gold alone, and hardness of the filling is likewise increased. Tin and gold combined in alternate layers will stand wear better than tin alone. However, a tin base and gold surface, when the latter is made to unite properly with the tin—mechanically welded by the use of long serated pluggers—presents a surface as hard as gold alone and would seem, logically to be better than the intimate mixing of the two metals throughout the filling.

Shavings scraped from a bar of pure tin may be used almost as well as foil for fillings, the fresh surfaces welding more readily than surfaces of foil prepared in advance and exposed more or less to the oxidizing influences of the atmosphere.

Preparations of tin crystal or shredded have been on the market for years and have been found very satisfactory as a good ready

workable and adaptable material; and yet no more so than the pure tin foil in rolls, ropes or ribbons. The only shredded tin to be had at the supply houses to-day, so far as the writer knows, is Robinson's preparation. It comes in mats, similar in some respects to mat gold. Years ago the writer used quite extensively a preparation of this kind, known as Slayton's Felt Foil. Its working qualities were excellent, and the fillings eminently satisfactory so far as tin goes. I am inclined to think Robinson's is about the same thing. It is little if any more trouble to place it than an amalgam filling and in a number of respects is better. The chemical changes that tin undergoes in the secretions of the mouth have a tendency to harden tin fillings as time goes along, old fillings being much harder, it has often been noted, than freshly-made ones.

As foils of tin and gold are combined, so one may combine crystal tin and crystal gold if desirable, grading up from pure tin at the bottom of a cavity to pure gold in the finish, if one so chooses; and such a filling has its very excellent points.

Tin may be readily burnished into a cavity and the work facilitated greatly by the use of heated burnishers instead of cold ones, but in the estimation of the writer and others a filling so made is not so dense as one made by pluggers, either by the wedging method, hand pressure with serated pluggers, or consistent malleting, or all combined. Consistent malleting refers to the fact that tin will not stand such malleting as we have to give gold. Too much malleting of tin chops up the surface. Too much malleting of gold makes a surface so hardened that cohesion will not take place when the next piece is added, or will be imperfect and liable to separate later.

#### GOLD.

Owing to its beautiful appearance, luster and power of resisting oxidation, gold has been valued from the earliest ages. Allusions to gold are frequent in the Old Testament.

Gold is the only native metal of a yellow color. It is, however, notably affected by small quantities of other metals; thus the tint is lowered by small quantities of silver and heightened by copper. When pure, gold is the most malleable of all metals. One grain may be beaten into leaves which cover a surface of 56 square inches and are only 1-282000 of an inch thick. It is extremely ductile. A single grain may be drawn into a wire 500 feet in length.

Gold can be welded cold and in consequence is especially adapted, so far as a metal goes, to making restorations in badly broken-down teeth.

Precipitated gold, crystal gold, or any finely divided pure gold may be, under proper pressure between dies, formed into solid medals, coins, etc. An ounce of gold covering a silver wire may be extended more than the distance between Chicago and Boston.

(To be continued.)

**DENTAL THERAPEUTICS.**

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois.)

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**CHAPTER XVI.**

Bismuth is one of the metallic agents that has been used for a long time, and certain of the insoluble salts of this metal has enjoyed a reputation as a medicinal agent for the treatment of various gastric and intestinal disturbances, principally in such conditions as gastric catarrh and ulceration of the mucous membrane of the stomach and intestines. For such conditions as ulceration of the intestinal tract it has been looked upon as almost specific, but its true medicinal property is extremely overestimated and in such conditions as above named it perhaps acts only as a powder to give some protection to the ulcer, and at the same time exert some astringent influence. In the ulceration of the stomach it very soon after administration covers the surface of the ulcer with a continuous sheet, which acts as a protection from the mechanical injury of food and also to prevent the irritating action of the gastric juice. For such conditions as above named the subnitrate in from 30 to 45 grains a day is administered, however, larger doses have more recently been recommended. As we will see later on there is a question as to what value this may have other than a mechanical one, as above stated. Fleiner has recommended that large doses be administered through the stomach-tube, in order that it may reach the part without being interfered with by the fluids. As to the value of such a method it is questioned by some who seem to have obtained as satisfactory results by swallowing the powder in large doses. In case of diarrhea the subnitrate of bismuth has been used for its astringent and protective action to the mucous surfaces, acting as a mechanical coating for the intestinal tract. In surgery subnitrate of bismuth gained some reputation as an antiseptic dressing for surgical wounds, and in the hands of some operators it was quite extensively used to take the place of iodoform, with a hope that the disagreeable odor of iodoform be done away with and also the liability of iodine poisoning, not commonly found in large surface wounds. However, it was soon noticed that its germicidal effects were very slight, and the benefits derived from the dressing of wounds with the bismuth compounds was due more to its absorbing the organic fluids, thus rendering the field for the growth of bacteria immune.

The general actions of the various compounds of bismuth when administered by injection subcutaneous or intravenous, the first symptoms are those of stimulation of the medulla and spinal cord, later by a compressed condition, and if the dose be sufficient paralysis will follow. The respiration is increased, the heart is slower and violent convulsions follow each other at short intervals. In case of fatal doses as the end approaches the blood pressure is diminished, due principally to the heart weakness and from a depression of the vasomotor centers.

When small doses are injected into the mammalia it produces intoxication of a chronic form. The early symptoms is an interference with the appetite, followed by vomiting, diarrhea, salivation and stomatitis, with ulcerations of the gums, swollen tongue and frequently large indurated ulcers covering the mucous membrane of the oral cavity. When this point has been reached the animal moves with slowness and incoordination, and if the condition is such tetanic convulsions follow; albumin and casts are usually found in the urine. In certain forms of chronic poisoning with bismuth the heart seems but little affected, blood pressure is lowered, intestinal irritation and diarrhea is not of enough importance to attract special attention.

In chronic poisoning by bismuth followed by death, post-mortem examination shows congestion, inflammation and a necrotic condition of the kidneys, black discoloration of the upper portion of the intestine; a strange feature of this discoloration is that it extends only to the ileocaecal valve, and the pigment extends through the entire thickness of the walls of the intestines with certain parts of the surface in a necrotic state. It has been pretty thoroughly demonstrated that this discoloration is the chemical formation of a sulphide of bismuth. Meyer and Steinfeld made the observation that while bismuth is excreted all along the intestinal tract, the greater quantity is excreted by the large intestine and caecum. Their idea is that the ulceration found on the mucous surfaces of the intestines is due to the precipitation of the sulphides in the vessels, thus interfering with the blood current in the small blood vessels. This fact was pretty well demonstrated by the administration of sulphide followed by small doses of bismuth.

Bismuth as a medicinal agent in dental therapeutics is limited to the treatment of certain forms of ulcers on the oral mucous membrane. They act there somewhat in the same manner as when they are taken into the stomach and intestines, in such cases as previously



mentioned for ulcers in the stomach and intestines. It prevents the actions of micro-organisms and other foreign substances on the ulcerated surface. The value of the pharmacological action of bismuth and its various compounds should not be underestimated, for it has been the privilege of the writer to have two cases of severe forms of stomatitis come under his observation, in which subnitrate of bismuth had been taken for a long time and most all of the conditions above described were present in the patient, small ulcers would appear on the oral mucous membrane, and most invariably on the left side. The physician who had charge of the case did not suspect for a moment that the conditions of the mouth were due to the effects of the medicine. The gums around the teeth on the lower left side were more or less congested and inflamed, at times were quite painful. It seemed that the patient had improved so far as the intestinal disturbances were concerned, but suffered considerable pain and anxiety from the oral mucous membrane. When the administration of the drug was dropped and a pleasant, astringent mouthwash was used, the ulcerated condition of the oral mucous membrane soon passed away. Bismuth is rapidly eliminated from the system to the kidney, mouth and intestines.

In the discussion of the various heavy metals and the constitutional effects they may produce in the living animal organism, seems to have a particular fundamental bearing on certain pathological lesions that appear in the oral cavity, and it is not uncommon to see in the literature of the dental as well as the medical profession reference to their effects upon the function and vital activity of the cells of the animal body as individual organisms, or upon the cells of the body as a whole. They do not go into the cellular structure as a combined chemical agent, but the ions of these metallic salts may have the power of selecting certain cells, or certain cells of the body may have a chemotactic property for certain of these ions. When the ions have entered into the molecular structure of the proteid molecule they at once necessarily change the functional activity of the cell protoplasmia, either increasing its action or depressing its function, thus rendering the cellular action of certain parts or organs of the body incapable of carrying on their physiological function. And the intimate connection of the cell or organ of the body is such as to have its influence on other parts of the body, and in this way not only is the function of the cell interfered with, but the organ of which that cell is a united part—and

the organ is of vital interest to the rest of the body. In this way the secretions and function of the body is sometimes rendered in a state of susceptibility for the action of some external agent to place the body locally or general in a pathological state. It may be possible that some of these metallic compounds have the ability to become a part of a certain cellular structure and deposit itself there in a way that the cell is incapable of disposing of the metallic substance as was shown in the case of silver, where the silver apparently deposits itself in certain cellular structure and remains there through the life of the individual without apparently doing any harm to the function of the cell or to the body. It might be well here to farther note that no deposits of these metallic substances are found in any cells where the cellular activity is active, for instance, like the mucous or glandular cells. It will be noted, however, that traces of these metallic compounds can be found in the excretory products of the body, such as those of the intestines, kidney and salivary excretions.

Right in this connection it might be well to mention that the saliva is not, in the stricter sense of the word, an excretory product, but that it is a substance that seems to gather up from the blood and lymph certain elements that are frequently classed among the excretory elements of the body substance, for instance, like those of the metallic compounds, traces of which are to be observed in the saliva. It must be borne in mind, however, that the metallic salts is not a waste product of the body substance but acts as a foreign substance in the majority of instances, and yet the cell protoplasmia of the body tissue tolerates certain quantities of these foreign elements and becomes a chemical constituent of such physiological solutions as the saliva. But when such agents appear in the saliva the body is physiologically incapable of carrying these elements out of the body through their various physiological excretory channels.

In this connection we will mention another metal that seems to have had but little value as a medicinal agent. We have reference here to aluminum. The preparation of this agent is known as alum, which is a sulphate of aluminum and potash, and its use is confined almost entirely to the parts where a local astringent agent is called for. A solution of alum has the properties of precipitating albumin but the precipitate readily goes into solution when an excess of the proteid substance is present. This aluminium albuminate has many of the characteristics as the albuminates form by the heavy metal,

but whether it is just the same in its chemical combination is a question that is not wholly settled. When a dilute solution of alum is applied to the mucous surface it has an astringent property due to the precipitation of an albuminate, but if a strong solution should be applied to a fresh wound it will cause considerable irritation. The same can be said to be true of dried alum, it will coagulate the albumin, at the same time having great affinity for moisture; it attracts the liquid substance and in this way produces great irritation.

Most everyone can recall to mind when it was quite common practice to put burnt alum on an ulcerated surface, and reasoning on this line one can readily understand how it acted beneficially on phagedenic surfaces. Bacterium must have moisture, therefore the alum causes disiccation in the manner above described it would extract the moisture from the ulcerated surface and destroy the nutritive field for the proliferation of bacteria. It probably has but little, if any, anti-septic properties. Experiments carried on by Siem, by injecting the sodium aluminium, lactate of tartrate in animals it would produce a form of intoxication and when considerable quantities were injected the animal would linger some two or three weeks and then die. The general symptoms after an injection did not appear until about two or three days and then constipation, vomiting, rapid loss of weight, with marked locomotive interference, with an anesthetic condition of the mouth and throat, and with considerable loss of sensation throughout the entire body. The mucous membrane of the stomach involved was congested, the liver and kidney having undergone a fatty degeneration, with a degenerative condition of the medulla and spinal cord, particularly interfering with the lower cranial nerves. Clinical use of the solution of alum has been tried in a number of diseases, in skin diseases, in certain diseased condition of the eye, hemorrhoids, condyloma, bleeding of the nose and gums, and has been used with apparent success in chronic lead poisoning. The observations of Dollken is that the various aluminium compounds act upon the kidneys, stomach and intestines very much in the same way as does the other heavy metals. The chemical formula of the various compounds of this metal: Potassium alum ( $\text{Al}_2\text{K}_2(\text{SO}_4)_4 + 24\text{H}_2\text{O}$ ); aluminhydras (U. S. P.) ( $\text{Al}_2(\text{OH})_6$ ); dried alum ( $\text{Al}_2\text{K}_2(\text{SO}_4)_4$ ); aluminisulphas (U. S. P.) ( $\text{Al}_2\text{SO}_4$ ).

While the general pharmacological effects of the aluminium compound is such as to indicate its general action in the body to be very

much like that of the other metals like iron, mercury and silver, etc., still its general effect is not nearly so poisonous in its action as those just named, and it belongs to the class of heavy metals, and all of them when in a solution or disassociated readily enter into the physiological activities of the animal body, either increasing the protoplasmic activities of the cells, or depressing their functional activity, in some instances doing one thing and in another will act in another way, depending upon the susceptibility of the animal and the amount taken into the system.

(To be continued.)

# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

(By R. B. Tuller.)

No. 11.

Humor?

In dentistry?

Why, it is often funnier

Than a barrel of monkeys.

Now, isn't it laughable—side-splitting—

When you get a man down on the floor on his back,

And, with your knees on his noble chest,

Wrench out several of his teeth? O, he he he, ha ha ha, ho ho ho,  
huh uh—huh.

Or, perfectly hilarious to get hold of a sock-dolager of a tooth  
and then drag your patient about the office?

Slam 'em up against this wall, then chuck 'em over against that.  
Jam 'em first into this corner, then over into another.

Then waltz and two-step (and if you have got hold of the wrong  
man, *side step*) all around the room. Never mind the furniture;  
hang on to the tooth. Whee, but it is a regular delirium of exciting  
pastime!

And the other fellow? Why, he simply dangles at the business  
end of the forceps and flips about like the boy on the tail end of a  
game of "crack the whip."

The dentist who does not enjoy this thrilling daily exercise misses  
a good deal that goes to keep a man in good spirits and in good  
health and physical strength and condition,

To say nothing about enjoying the humorous attitudes and situa-  
tions that both operator and patient get into in the hilarity of the  
occasion.

Well, if you let the other fellow—the layman—tell it, it is his  
idea of where the fun and humor comes in of being a dentist. It is  
always about pulling teeth or "touching the nerve" with a crowbar.

It is humorous only in the absurdity of declaration.

I suppose, if you are a real thoroughbred scientific dentist, with  
the dignity and lofty attitude of a professional man, you are not

supposed to have any humor in your make-up. Some haven't even a realizing sense of wholesome *good* humor.

But that is a mistake; for good humor is a stock in trade and one must keep up the appearance whether he feels it or not, and must not get out of patience no matter how his patients try his patience. This is no joke—just a solemn fact.

I don't know as I can tell just where there is anything humorous about some things in dentistry; for instances, about one who continually slips down in the chair and chucks his head down into his chest, compelling you to stand on your head to be able to see and operate; or who keeps turning his head west when you want it east; or who puckers his mouth as though he had a puckering string in the lips and was trying to close the bag; or who obstinately persists in not opening his jaws more than half way; or who twitches and jerks and grabs your hands; or from start to finish antagonizes your every move and grumbles and mutters because you must use this, that or the other instrument, as though you were doing the work entirely for your own pleasure. Humor? huh! I could go on with a hundred pages of things that would make one feel like throwing something or somebody through the window, glass and all, and then putting for the woods or tall grass.

Do you think I am straying from my topic? No, there is more than one kind of humor—bad humor as well as good, and a good many things happen to bring about bad humor in the practice of dentistry; but occasionally something happens to push away the clouds and let a little sunshine in.

The following is an instance in my own practice: It was a Salvation Army girl and she wanted a tooth extracted and had faith in prayer, but none in the gas which was suggested.

Being seated in the chair she asked time to compose herself and pray.

This was the burden of the prayer, which was not a silent one: "O, Lord, you see where I am and I'm going to have a tooth pulled and don't want to take no gas. Yes, Lord, I'm going to have a tooth out. I know it is going to hurt, but I don't care if you'll only screw my courage up to the pitch. Thou hast answered my prayers many a time, O, Lord, when I only wanted some trifling thing. Now, O, Lord, I need Thee more than ever before. Be with me, Lord, and give me strength and courage without me taking gas. Help me, O, Lord, help me right now. The dentist stands right

here ready to take hold. Now, Lord, *now*." Here she settled back and closed her eyes and opened her mouth to the extreme, while her hands clutched the chair arms. I wasted no time in trying to do my part, but the mouth went shut with a snap before I could possibly score, and she threw up her hands and exclaimed: "No, no, I can't do it; I can't do it. You'll have to wait until I try again. The Lord answers prayer all right. He has for me several times, and He won't go back on me now."

She composed herself a bit and began again: "O, Lord, good Lord, I have faith in Thee. Come to me in this dentist's chair. This is my hour of need. I've prayed for things I might have got anyway, but now—*now*, O, Lord, I've got to have this tooth out or die. I know You will help me. I know You will help me, Lord; I know You will."

Again she was ready and again the mouth snapped shut at the slightest move; her hands came up and her courage was in a frazzle.

She sat crying a little and then, sobbingly, began her appeal again. I was touched with commiseration; and to try and bring things to a head I suggested that the prayer and gas might go well together, but she broke out afresh with weeping. Then all of a sudden a sense of shame seemed to come over her for being so babyish and as she straightened up she terminated her prayer in this way: "O, Lord, I guess I'll try the gas, but, O, Lord, I didn't use to be such a dum fool—You know I didn't. Now, I've got to take gas and I don't know anything about it. I'm afraid of it and need Thy help. O, Lord, be with me and sustain me. You can do *that* much. Please, Lord."

After the tooth was removed and she began to recover she cried out, "Glory to God! I've been up to the very gates of heaven in the arms of angels. I never was so happy in my life. Never mind the tooth; I don't believe I need to have it out. I have no pain and feel as though it would never give any more trouble." She was assured that it would not, as it was out. "Out?" she exclaimed, "How? When? Well, now, if that isn't direct answer to prayer I don't know what is. Why, as soon as I began to take the gas I was just surrounded by angels who calmed my fears and just bore me up and up and gave me a glimpse of heaven. Then something gave way. I don't know what it was, and I don't know just how we got down, but I never was so happy in my life. I wouldn't mind having every tooth I've got pulled if the good Lord will answer my prayer like that every time." And so she went away to bear new testimony in regard to answered prayer.

(Toothsome Topics every month.)

## PROCEEDINGS OF SOCIETIES

### PORCELAIN INLAYS.\*

By James H. Prothero, D. D. S.

The status of porcelain as a filling material is, without doubt, at the present time creating greater interest and discussion in dental literature and among the profession than any other subject.

This is due to several causes, the principal one of which is that both the profession and the public have long recognized the need of a material for tooth restoration which more nearly harmonizes with the natural tissues than do the metals.

Porcelain has also long been recognized as the material which most nearly fulfilled this requirement, but on account of difficulty in manipulating and limitations as to color and strength, its use has been restricted.

Recent improvements in furnaces of various kinds, and in the production of porcelain bodies of excellent quality and in numerous varieties of shades, have enabled many who otherwise would not have undertaken this work to enter the field.

Naturally, in the great body of men engaged in this line of work will be found enthusiasts and conservatives. The enthusiasts, or the more radical of them at least, proclaim with great earnestness their belief that porcelain should supersede, and will eventually supplant, all other classes of permanent filling materials.

The conservatives, on the other hand, believe that the use of porcelain inlays should be restricted to one or two classes of cavities in the anterior part of the mouth; they claim that its value and permanency in contour work, especially in the bicuspid and molars, has not been fully established.

That porcelain has a wide range of usefulness has been demonstrated. It has also been clearly demonstrated that there are limitations to its use. Recognizing the truth of the statement just made, I am neither overenthusiastic nor extremely conservative.

For æsthetic reasons, I believe that porcelain inlays are indicated

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\*Read, before the Northern Iowa Dental Society, Clear Lake, Iowa, September 2, 1903.



in those cavities which are exposed to view in laughing or speaking; when such cavities can be properly shaped for the retention of the fillings, and where the latter, when baked and cemented in place, will have sufficient bulk to withstand the stress to which they will be subjected.

There are many locations in which the conservation of the teeth can be more safely and surely accomplished by the use of gold, amalgam or gutta-percha than by the use of porcelain. As before intimated, porcelain is valuable principally on account of its harmonious likeness to tooth structure. It possesses no special tooth-saving properties not already found in other filling materials, although this claim has been made for it.

Therefore, in positions where fillings will not be exposed to view, where space is limited, stress is great and sufficient retention cannot be secured, porcelain is contraindicated.

#### FAILURES IN PORCELAIN FILLINGS.

The failures recorded against porcelain fillings may be summed up as follows: Displacement, breakage and loss through recurrent decay.

Displacement may be due to excessive stress brought upon the filling in mastication, to imperfect retention form of the cavity, to the use of an inferior quality of cement in setting, or to a combination of two or more of these causes mentioned.

Breakage is due to the application of undue stress or to insufficient bulk of material.

Loss through recurrent decay, while not of common occurrence, has usually been noticed in those cases where the cement is rapidly dissolved by the oral fluids.

#### DIFFICULTIES MET WITH IN CONSTRUCTION.

First: Difficulties met with in the preparation of cavities of certain classes.

Second: Warpage of the matrix during the baking of the body.

Third: The "shadow problem," or the proper selection and application of colors to harmonize with tooth structure when inlay is set.

There is one principle in the preparation of cavities for porcelain fillings that differs radically from the accepted rules of cavity preparation in general, viz., cavities must be shaped without undercuts of any character. This is essential in order to insure the removal of the

matrix from the cavity without distortion and to permit the finished inlay to take its proper position in the cavity.

The preparation of cavities, especially in the anterior teeth, where angle restoration is involved, is problematical on account of the difficulty in securing proper retention form for the filling to resist the stress to which such fillings will be subjected. Grooves and flat seats must be developed in cavity formation to give needed anchorage, thus relieving the cement of much undue strain. This is not always an easy task, and sometimes the judgment and skill of the operator are taxed to the utmost to secure satisfactory results. By exercising good judgment, skill and patience, successful results can in most cases be secured.

#### WARPAGE OF THE MATRIX DURING THE BAKING OF THE BODY.

When metal plate is swaged, hammered or burnished the relation of the molecules to each other is changed. This becomes apparent upon annealing, by the tendency of the molecules to assume their original relation, thereby producing warpage. This is especially true of platinum foil used in matrix construction. By repeatedly annealing and returning the matrix to the cavity for final adaptation, the foil can be made to lie "dead flat," without change under heat, as suggested by Dr. W. H. Taggart of Chicago. Warpage of the matrix may also occur from the adhesion of the porcelain to the foil and the consequent contraction during baking. By using platinum foil of sufficient thickness and applying the body properly, warpage during the vitrifying of the latter can be overcome in fillings of ordinary size, while in very large fillings blocks of high-fusing porcelain may be ground in such manner as to support the margins of the matrix, and the porcelain body applied and baked around the ground section.

The manner of applying the body to the matrix for the first bakings is also an important controlling factor in preventing warpage. This point will be enlarged upon, later on, under the proper heading.

#### THE SHADOW PROBLEM.

Tooth structure is more or less translucent, that is, it allows the passage of light, yet so scatters the rays that the objects from which the light comes are not visible. Porcelain also possesses translucent properties, and in many locations in the mouth inlays, when set, are scarcely distinguishable from the tooth structure. There are positions, however, in which porcelain assumes a darker shade when set,

owing to the cutting off of the rays of light by the opaque cement. This can be obviated by applying the body in different colors and baking each separately, as suggested by Dr. Reeves, or by constructing the inlay of a lighter shade of porcelain than the tooth structure,



Fig. 1.

and by etching that portion of the inlay inclosed in the cavity with hydrofluoric acid, as suggested by Dr. Van Woert.

Much experience, however, is required to secure uniform and satisfactory results, and even with the greatest care failures occasionally occur. This problem, it appears to me, is the most difficult of any met with in porcelain work.

One of the most decided objections to porcelain work, in addition to those already mentioned, is the accurate and delicate technical

**skill that must be acquired in order to do this work successfully.** It has been stated by some writers that a higher order of skill must be attained in inlay construction than in other operative or prosthetic procedures. This may be true to a certain extent, but the difficulty



Fig. 2.

is chiefly due to the fact that very few who undertake this class of work have given it the same amount of study or familiarized themselves with the materials required to the same extent that they have in general operative or prosthetic procedures.

Anyone with an average amount of skill and patience can, if he will, acquire the necessary dexterity to do this class of work successfully. A beginner should not attempt difficult restorations until familiar with the more simple cases. In this, as in any other class of

technical procedures, skill comes with practice and patient application.

LOCATIONS FAVORABLE TO THE USE OF PORCELAIN.

Under this head let us refer to a previous statement. *Porcelain is indicated in those cavities exposed to view, where proper retention*

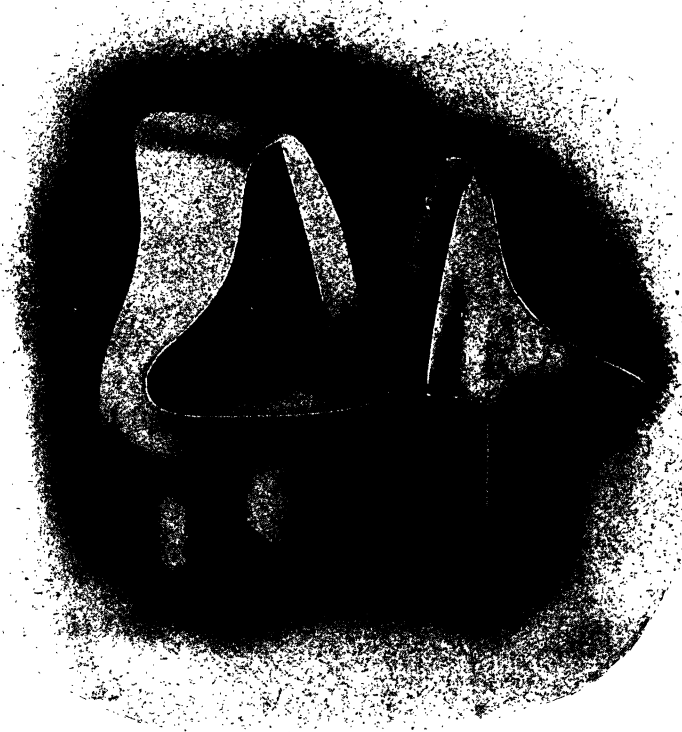


Fig. 3.

*can be secured, and the fillings, when constructed, will have sufficient bulk to withstand stress.*

The classification of cavities, ranging from those in which porcelain is most strongly indicated to those in which it is least required, may be stated as follows:

First: Simple labial or buccal cavities.

Second: Cavities in the six anterior teeth not involving angles.

Third: Cavities in the anterior teeth involving the angles.

Fourth: Cavities in bicuspid and molars involving an axial and an occlusal surface.

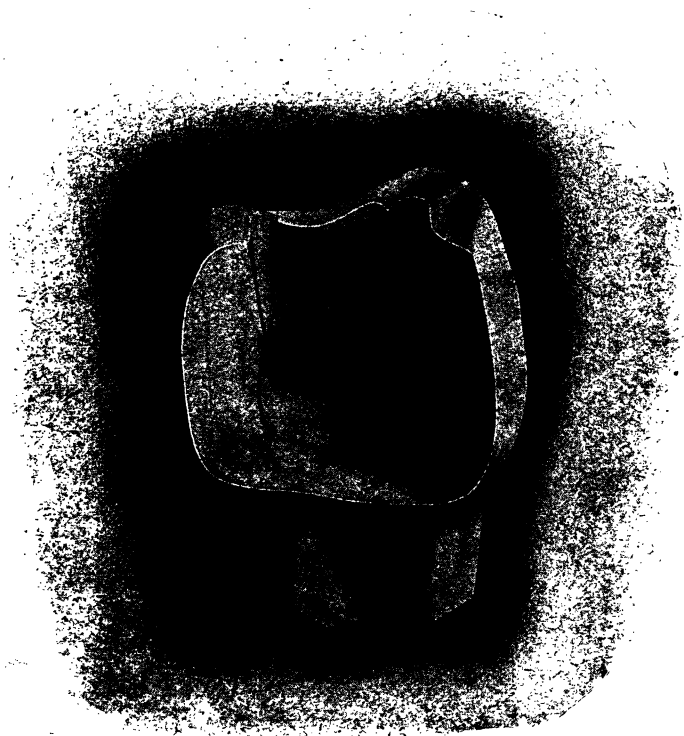


Fig. 4.

#### PREPARATION OF CAVITIES FOR PORCELAIN INLAYS.

It is impossible, in a paper of reasonable length, to give detailed methods of cavity preparation for all of these classes mentioned. I shall, therefore, confine myself to a few general principles and depend upon demonstrations and models to supply the details.

## LABIAL CAVITIES.

In cavities of this class, as well as in all others, the principles of extension for prevention should be carried out as fully as possible.

Undermined enamel should be broken down and cavity outlines made symmetrical.

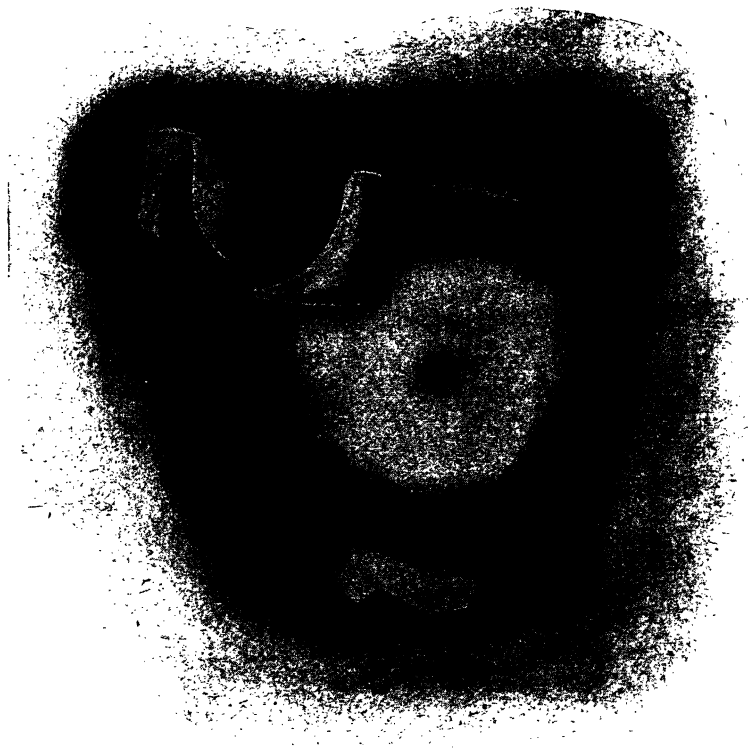


Fig. 5.

The walls should be formed as nearly parallel as conditions will permit to insure retention of the filling.

In surfaces where much curvature exists a parallel condition of the walls may be secured, partially at least, by squaring out the dentin slightly below the dento-enamel junction.

The angle formed by the junction of the axial with other walls should not be squared out too definitely.

The cavo-surface angles should be sharp and well defined, and but slightly beveled, in order that the peripheral margins of the inlays should not be frail.

#### PROXIMAL CAVITIES IN THE ANTERIOR TEETH NOT INVOLVING THE ANGLES.

In cavities of this class it is necessary to separate the teeth before beginning operations. These cavities must be formed without undercuts. They should also be so shaped that the matrix when bur-nished in position can be removed without distortion. The location of the cavity will determine the direction in which the matrix can be most readily removed, whether labially or lingually. If the cavity of decay has progressed more to the labial than to the lingual the cavity preparation should be made to allow the removal of the matrix labially. If decay has progressed to a greater extent lingually, the reverse conditions should prevail.

The gingival and incisal walls should be as nearly parallel as practicable. When the cavity allows the introduction of the inlay from the lingual side, the labial margin of the cavity should be carried far enough to the labial to allow the porcelain to be well exposed to view. This will partially obviate the shadow problem that arises in this location. The cavo-surface angles should be prepared as outlined in cavities of the previous class.

#### BUCCAL CAVITIES IN BICUSPIDS AND MOLARS.

The preparation of cavities in this class is similar in most respects to those of the first class mentioned, and the rules there laid down apply with equal force to the class under consideration.

#### PROXIMAL CAVITIES IN THE ANTERIOR TEETH INVOLVING THE ANGLES.

The preparation of cavities of this class requires much thought and skill, since the completed fillings are exposed to a greater or less amount of stress in mastication.

First, the gingival wall or seat should be made flat and at right angles to the long axis of the tooth.

The introduction of inlays in cavities of this class must naturally be in a labial, lingual or incisal direction; therefore, the labial and lingual cavity walls must be formed at least parallel with the long axis of the tooth.

In the upper anterior teeth, when the cavity does not extend far on the labial surface, preparation can be made as follows: Square



the cervical wall. Cut away the labial and lingual wall to permit the ready removal of the matrix. Cut a step on the lingual surface of the tooth, extending from the incisal edge to the gingival wall. This is done by removing the lingual plate of enamel.



Fig. o.

Cut a groove at the junction of the linguo-axio-mesial or distal walls, as the case may be, extending from the gingival wall to the incisal edge, and bevel the several cavo-surface angles slightly. It is usually best to trim away the labial plate of enamel at the incisal edge to the same extent that the lingual has been cut, to avoid a long, irregular line of junction occurring on the incisal edge.

Fig. 3 illustrates a cavity prepared as directed and the inlay baked around a post which extends into the root canal, thus furnishing additional anchorage. Note that there is a labial shoulder to prevent outward displacement.

CAVITIES IN BICUSPIDS AND MOLARS INVOLVING AN AXIAL AND AN

#### OCCLUSAL SURFACE.

The same general principles followed in cavity preparation for gold or amalgam fillings apply here in inlay work, with a few exceptions, which will be noted:

First: The cavity must be formed without undercuts.

Second: The axial, buccal and lingual walls should be slightly divergent from gingival to occlusal to allow the ready removal of the matrix in an occlusal direction.

Third: When the line of junction of the cavity wall and the periphery of the inlay comes within a contact area of a tooth of the opposite jaw, it should be extended beyond the possibility of such contact to give necessary strength to the porcelain.

Fig. 6 illustrates a method of restoring a notched incisal edge. A lingual view of the cavity is presented. The shoulder prevents outward displacement. In lower incisors the shoulder should be prepared in the labial plate to prevent lingual displacement by the upper teeth.

The preparation of the cavities as outlined is similar in most respects to the methods recommended and taught by Dr. A. E. Peck, who deserves much credit for the interest he has displayed along this line. Those who are familiar with his system will not see the points of difference as they occur.

#### CONFORMING THE MATRIX.

The conformation of the platinum foil to the cavity is a step requiring skill, patience and experience.

Two methods are followed at the present time, both of which are reliable if proper care is exercised.

The system most commonly followed consists in burnishing the foil directly in the tooth cavity with pellets of cotton or spunk carried in the pliers and by the use of suitable burnishers of ordinary and special shapes.

The other method consists in swaging the matrix in an impression, or a reverse impression of the cavity with a suitable swaging device,

## BURNISHING THE MATRIX.

The rubber dam should be applied in all cases and the cavity dusted with soapstone.

A piece of platinum foil 1-1000 thick thoroughly annealed should be cut of sufficient size to extend beyond the cavity margins when pressed into place.

This is placed over the cavity and held in position with the fingers. A small piece of moist spunk carried in the pliers is pressed against the center of the foil to force it against the floor of the cavity. Care should be taken to obviate as much as possible the foil wrinkling against the cavity walls, also to prevent the tearing of the foil or its perforation by the plier points. Wherever a wrinkle or fold appears it represents three thicknesses of foil at that point, and while the bulk of material may be thinned down somewhat in burnishing, it cannot be reduced to any great extent. The result is that when the inlay is completed a very perceptible space exists where the fold occurred, which must be filled in with cement. This is objectionable on account of the color and more ready dissolution of the cement.

The foil having been carefully forced to the floor of the cavity, it is held there by a burnisher resting on a pellet of spunk. Another pellet is taken up with the pliers and forced into the cavity, carefully adapting the foil to the entire floor, first, before making any attempt to secure adaptation to the walls, other than preventing the foil from folding.

The adaptation to the walls is secured by pressing a small pellet into the cavity near the floor and drawing it out, producing pressure toward the wall at the same time. Practically the entire floor of the cavity should be covered with spunk held with some suitable instrument during the operation. Some prefer to use various shapes of rubber points for the work, and very good results are secured in this way, but the spunk or cotton is always convenient and pellets of any size can be formed quickly, so that these materials are perhaps more commonly used than the rubber points.

Burnishers of various forms may now be used to advantage to secure adaptation of the foil to the cavity walls and into the cavity angles. When this has been approximately accomplished the matrix may be filled with spunk and pressure applied with an instrument which will force the foil against the floor and walls of the cavity at the same time.

The adaptation of the surplus foil to the outer surface of the tooth can be accomplished with spunk in the same manner as outlined, drawing the pellet from the cavity margin outward in all directions until the foil lies flat upon the tooth surface.

The adaptation of the foil to the cavo-surface angle yet remains to be done.

This is one of the most, if not the most, important steps in the whole operation. Securing perfect adaptation at this point with sharp angle definition without folds in the foil insures practically perfect margins in the inlay. An indefinite, poorly defined angle in this location will result in a defective porcelain margin; therefore the greatest care should be exercised in this step.

After perfect angle definition has been secured the entire interior of the matrix should be filled with spunk, and a piece larger than the cavity applied over all.

Pressure, with a suitably shaped instrument larger than the cavity or with the finger or thumb, is then made against the spunk to force the matrix into all parts of the cavity, against the cavity margins and tooth surfaces at the same time.

The spunk should then be removed and the matrix carefully lifted out of the cavity. Any excessive surplus of foil around the margins should be trimmed away and the matrix returned to the cavity for correction.

As previously mentioned, it is essential at this point to anneal the matrix, return it to the cavity and produce general pressure upon it several times, in order that it may lie "dead flat" during the baking process.

The annealing can be best accomplished by introducing the matrix into the furnace and subjecting it to as great a degree of heat as is required to fuse the porcelain.

Great care must be exercised in handling the matrix to prevent its distortion by the grasp of the pliers and in the application of the body.

#### SWAGING THE MATRIX.

The cavity is first dusted lightly with talcum powder. A mix of Harvard cement is made of rather thick consistency, into which is incorporated sufficient talcum powder to permit of handling and to destroy its adhesive property without impairing its plasticity. This is then introduced into the cavity and enough force applied to secure

a sharp definite impression of all surfaces with which it comes in contact, and allowed to harden. Any surplus portions that would prevent the ready removal of the impression should be cut away. The impression is then carefully loosened and removed. If it is thin and weak at points it may be strengthened by the addition of more cement after removal from the mouth.

In simple labial or buccal cavities, when this method is followed, the impression is imbedded in a ring which forms a part of the swaging device. Cement, modeling compound or plaster-of-Paris may be used for this purpose, the two latter preferably, for economical reasons. A piece of foil of proper size is cut, centered over the impression and partially pressed to place with spunk. The ring is then placed in the swaging device and screw pressure or hammer blows applied.

The cushion or counter die usually consists of soft rubber or soft rubber water bags, confined within the steel cylinder of the swaging device.

The impression should be elevated somewhat above the margins of the ring to insure contact of the rubber with the matrix at all points.

The opening in a matrix so constructed will represent the exact diameter of the cavity from which the impression was taken, and this, it is claimed by those who follow this method, is a point of decided advantage over the burnished matrix.

When it is desirable to reproduce the cavity of exactly the same size as that in the tooth and swage the matrix in the reproduction, it may be done by dusting the impression with talcum powder, making a mix of cement to which talcum is also added, and pressing this into all parts of the impression, as well as over the margins.

When the original impression is removed there remains a reproduction of that portion of the tooth in which the cavity is situated, and into this a matrix may be swaged, as previously outlined.

Good results are secured by this system, as well as by the first method outlined, and it seems to be a matter of choice or preference among porcelain workers rather than of superiority of one system over the other.

#### APPLICATION AND BAKING OF THE BODY.

The first and most important consideration under this head is the selection of porcelain body of proper color. This is usually done by

first closely examining the tooth while moist and noting the various shades that are observable in the enamel and the underlying dentin. Usually yellows, grays and blues predominate, although we frequently find browns, reddish browns and greens showing in the tooth structure.

This is a study by itself and requires much thought and close observation to correctly analyze the various shades present. Dr. W. T. Reeves has written a number of valuable articles on the shading of porcelain that are well worth perusal. I will not go deeply into this subject, but will attempt to give the essentials that must be observed.

The dentin in almost all teeth is of a yellowish tinge, regardless of the color of the enamel overlaid. Therefore, in most inlays the base or foundation should consist of a yellowish tinge of porcelain, more or less pronounced according to the shade of the tooth. This is applied and baked first. Over this can be laid the colors necessary to coincide with those discernible in the tooth. These should not be mixed indiscriminately, but laid on in exactly the position where that particular color should show. Sometimes two, three or even four colors may be needed to produce the shades represented in the tooth. When these have been properly placed and the piece vibrated to blend the several colors at their margins, the second baking is carried out. Over these colors is usually placed a final layer of some neutral body of a semi-transparent grayish tinge, and the final baking completed. The underlying colors, although quite pronounced, are so softened down and modified as to harmonize with those of the tooth, if the steps are properly carried out.

The outline just given relates more particularly to the Brewster bodies and enamels, which fuse at different temperatures, rather than to the use of porcelain bodies, of varying shades, fusing at the same temperature. Good color results may be secured with either kind if sufficient skill in their use is developed.

In proximating cavities it is necessary in most cases to construct the inlays of several shades lighter material than the color of the tooth seems to call for, on account of the layer of cement interposed between the cavity walls and the inlay. Extended experience alone will serve as a guide in selecting colors in such cases.

In the selection of colors the sample sticks of porcelain accompanying each outfit will serve as guides in matching the colors of the teeth. The number or letter on each stick indicates the bottle, num-

bered in the same manner, which contains the porcelain powder of like shade to that in the stick.

#### APPLICATION AND BAKING THE BODY.

The proper color having been selected, a portion of it is placed upon a clean glass or porcelain slab, water added to it and the mass thoroughly spatulated. The excess of water, if any be present, is then taken up with a linen napkin or bibulous paper. The matrix should be grasped slightly but firmly on some portion of the surplus with a pair of pliers that can be closed and set. This insures against the dropping of the matrix. A little of the moist body is taken upon the point of a spatula and dropped on the floor of the matrix. A serrated instrument is drawn over the pliers, or they may be tapped slightly to settle the particles of body closely together. In doing this the moisture is driven to the surface of the mass. It can be removed by touching it lightly with a small roll of bibulous paper and the process repeated until the porcelain is settled into a dense homogeneous mass.

Only a small amount of body should be applied for the first baking, and this should not be allowed to lay against the matrix walls to any extent, or warpage of the latter, due to contraction of the porcelain, may result.

The first baking should be continued until the porcelain is fully glazed, the temperature being carried a trifle higher possibly than will be required for subsequent bakings. This induces the maximum shrinkage in the inlay at this point and gives an unchangeable base on which to apply additional layers of body.

The second application of body should be made in a similar manner to the first, being careful to condense it thoroughly by vibration. This time it should be built up against the walls of the matrix to perhaps half the depth of the cavity when large and nearly full when small.

The second baking is then made and the piece well glazed. At this time some inlay workers prefer to place the matrix with the partially completed inlay in the cavity to ascertain if warpage has occurred, and if so, to correct it by additional burnishing.

The third application is now made, the matrix filled slightly fuller than the required contour, and the paste around the margins trimmed exactly to the angle, allowing no surplus to extend over the margin at any point.

Upon baking the third time, should the margins be below the required level, additional body should be added and the case returned to the furnace. The last baking should produce an even uniform glaze on the inlay surface.

In some classes of cavities, occluso-proximal in the bicuspid and molars for instance, it will be best to divide the first application of the body with a thin spatula so as to allow the porcelain to separate in baking. This will prevent warpage of the matrix, which would be most certain to occur were this precaution not taken.

Occasionally bubbles will appear around the margins of the inlay and sometimes through the body of porcelain.

These are due to imperfect condensation of the body, to impurities that may have been accidentally introduced, or to overheating in the furnace. The remedies, or rather the way to avoid such mishaps, are apparent.

#### REMOVAL OF THE MATRIX.

The matrix should be removed by carefully peeling it away from the inlay margins, using extreme care not to touch the peripheral angle with the fingers or instrument. Should the matrix tear a sharp chisel can be used for prying up the edge of foil, when it may again be stripped off.

Hydro-fluoric acid is used by many to etch that portion of the inlay which is enclosed in the cavity to give the cement a better hold upon the inlay and also to reduce the liability of shadows in certain locations.

The outer surfaces should be protected with wax to preserve the glaze.

Some use a knife-edged stone for cutting grooves in the inlay to give additional retention to the cement. This, however, in most cases is unnecessary if the cavity surfaces of the inlay are etched with acid.

#### SETTING THE INLAY.

First: Apply the rubber dam and dry the cavity thoroughly.

Second: Mix cement of proper color to moderately thin consistency and spatulate it thoroughly.

Third: Spread a thin, even layer over all portions of the inlay enclosed in the cavity and carry it to place quickly, using all the force that is permissible to expel any surplus, and force the inlay to proper position before the cement hardens.



A strip of rubber dam may be placed over the inlay and around the tooth and stretched in such manner as to produce pressure upon the filling in the proper direction.

Pressure should be maintained for ten or fifteen minutes, or until the cement has become hard and firm. When thoroughly set the surplus can be trimmed away with sharp knives.

Usually the thin inlay will appear darker when first set on account of the tooth and the cavity walls being abnormally dry. The tooth after a time regains its normal amount of moisture and the inlay should harmonize perfectly in color with the tooth if the various steps have been properly carried out.

The cement also may modify the shade somewhat, but this can not always be avoided. It is best usually to use a cement lighter rather than darker than the tooth for this reason.

Until a transparent cement is found this uncertainty will always be a source of greater or less annoyance to the porcelain worker, and until a cement is produced which is insoluble in the fluids of the mouth porcelain is likely to prove more or less unsatisfactory as a filling material.—*The Northwestern.*

# ABSTRACTS

## DISCOLORATION OF GOLD FILLINGS.

(By Paul B. Engel)

Discoloration of gold fillings even in the early days of the use of the material, attracted the attention of the profession, and various reasons were offered for this, which to-day are still recognized causes. Among these may be mentioned improper cavity preparation, including insufficient removal of decay and insufficient marginal extension. In the former defect, the gold next the floor and cavity walls being necessarily not well condensed, becomes very absorbent to the products of the progressing caries under it. This process extends to the margins of the filling, and a discolored edge results, due to the penetration into the substance of the filling of the products of the carious process. In the latter defect, the failure to extend the margins not only does not hide the filling completely and prevents the light from being reflected directly forward from it (I am referring particularly to approximal fillings in the anterior teeth), but also by its very position prevents access to all cleansing agents—the saliva, the lips, and the tooth-brush—and has not the appearance of the perfect gold filling. Another frequent cause is insufficient surface condensation. The operator's attention may be diverted while condensing the last layers of gold, and he fails to obtain the proper finish. He burnishes, polishes, does not dare to make new imprints with the mallet into the already flush surface, and the filling lacks that smooth, glossy polish of the perfect gold filling. Such a surface, as well as the dull pumice-stone finish, is very inviting to discoloration. Still another cause is the incorporation into the gold of foreign substances during the insertion of the material. This may happen in connection with combination fillings. Scraps of tin, amalgam, or metallic flakes from the instrument used will in time mar the surface of a filling. Here it may also be mentioned that excessive burnishing with steel instruments tends to discolor gold fillings. Combining tin with gold to fill at the cervical margin or the major part of the cavity, or combining amalgam with

gold—in all such combinations, if extreme care be not taken in finishing, the baser metal will be rubbed on or impregnated into the surface of the nobler metal. Even the very fact that a large mass of amalgam is in contact with a small mass of gold may, in the course of time, produce a slight discoloration in the gold. Furthermore, there may be a possibility that the fineness of the gold used is at fault, though this can hardly be the case at the present day. The action of sulfids, either taken in with the food or produced chemically in the mouth, is another reason for discoloration, and these agents are invariably present to a greater or less extent in all mouths. The mouths of febrile patients, as well as some of those in health, are often found to be in an exceptionally dry state. Such a state is very favorable to the action of chemical agents and organic forms of life, and a deposition takes place which is a common cause for discoloration.—*Dental Headlight*.

#### DR. DE LEON FOUND INFECTION DUE TO SALIVA.

Every surgeon usually speaks during an operation, and it is therefore evident that drops of saliva must find their way into the wound, and the question arises whether this is dangerous to the patient and likely to cause infection of the wound.

Dr. De Leon has investigated this subject by speaking in front of agar plates, care being taken to prevent infection from air microbes. These plates proved that in speaking, microbes are emitted from the mouth, and in operating, multitudes of dangerous and infecting germs are projected into the wound. In every one of several hundred experiments, streptococci, staphylococci, diplococci, and aerial microbes were isolated. The writer estimates that nearly a quarter of a million dangerous microbes fall into the wound during the course of an operation in which the operator only speaks two hundred words. That the micro-organisms were virulent was shown by the inoculation of forty-one guinea-pigs, fifteen white mice, and five rabbits. Of these, eight guinea-pigs and ten white mice died and the micro-organisms were recovered from the liquid exudation in the peritoneal cavity as well as from the liver and heart.

The only way to prevent this danger is by mechanical means. Masks made of gauze are ineffectual. Speaking in front of plates through a single gauze mask resulted in seventy-five colonies of microbes on the plate, thirty-nine of which were streptococci; speaking with a double gauze mask, there were twenty-one colonies.

The author has devised a respirator which consists of double perforated metal plates between which is packed a small quantity of cotton-wool. The respirator when applied over the mouth does not interfere with speaking, though it does prevent the exit of dangerous microbes from the mouth, as shown by several experiments of speaking against agar plates, on which not a single colony of microbes developed.—*Medical Press*, Jan. 27, 1904.

### WHAT IS ELECTRICITY?

(By T. Proctor Hall, Ph. D., M. D., Chicago.)

If I were to ask, "What is Four-fold Space?" or, "What is Dimethylamidoazobenzene?" or even, "What is Harmony?" perhaps not very many of those present would be able to give a complete and satisfactory answer. Nor would it be possible for the best of teachers in a few minutes to give such an answer to any one of these questions as to make the subject clear to a five-year-old child. Before he can know anything of four-fold space he must be familiar with the principles of elementary geometry. Dimethylamidoazobenzene is to him worse than Greek until he has some knowledge of organic chemistry. Harmony is incomprehensible without some knowledge of music.

Any difficulty that may exist in answering the question, "What is electricity?" is found either in the want of skill of the teacher or in some defect in the preliminary knowledge or in the want of capacity of the learner, and not in the subject itself. There is a popular idea that the nature of electricity is unknown, but this idea is entirely wrong. It is true that we do not know all about electricity. Neither do we know all about air or water; and we do not expect to ever know all about either of them. I am safe in saying that we know the nature of electricity quite as well as we know the nature of air or water, and in some respects better.

As a preliminary step let me call your attention to this list of all the things that are known to exist:

1. Matter.
2. Space.
3. Time.
4. Energy.
5. Spirit.

In the first class (matter) are included all the things that have weight or occupy space, from the largest of the suns to the tiniest fragment of an atom, and from the largest imaginable metal to the all-pervading intangible luminiferous ether. Matter can be transformed; it may take a multitude of different shapes; but it can not be created and can not be destroyed by human agency. So far as our powers go, it is eternal.

Is electricity a form of matter? It is not. Why? Because it has no weight and does not occupy space. It can not be changed into other forms of matter, nor can they be transformed into it. In spite of the fanciful speculations of some very prominent physicists, both in Europe and America, this answer is final and conclusive. Electricity is inseparably associated with matter, but it is not matter.

The second and third classes (space and time) are each so entirely different from everything else that it is unnecessary to do more than point out that they are both, so far as human powers go, uncreatable, indestructible and eternal. Not even a crank has made the suggestion that electricity belongs to either of these two classes.

Energy is capacity for doing work. It is not force, and it is not motion. It is simply and solely the ability to do work. A bent bow has energy that the same bow unbent does not have. This is only another way of saying that a bent bow can do work that an unbent bow can not do. A rock on the top of a hill is capable of doing work (as it rolls down) which the same rock at the foot of the hill could not do. In other words, the rock at the top of the hill has energy on account of its position. A ball shot out of a cannon is able to do work which the same ball at rest could not do. The moving ball has energy of motion. These illustrations will make it clear that energy is something that a given portion of matter may gain or lose. But if energy is gained it is gained from some other portion of matter, for no energy is ever created. Nor is energy ever destroyed. Like matter, space and time, it is uncreatable and indestructible by human power.

Electricity is a form of energy. This statement might be objected to by some mathematicians who use the word "electricity" in a very restricted technical sense; but in the popular meaning of the word this statement is correct. Electricity is known to be a form of energy by these two facts; as often as a given amount of electricity is produced a certain amount of energy in some other form disappears, and when that electricity disappears an equal amount of energy appears in some other form.

Electricity is not spirit. Spirit is known by its capacity for receiving sensations and of becoming conscious. In the sense in which I use the word, which is entirely apart from any theological doctrines, every one who hears me is a spirit. Consciousness itself is not a permanent and indestructible thing. Like motion, it may ap-

pear and disappear, but the something which underlies consciousness, whatever that may be, the something which is sometimes conscious, and which retains its individuality through successive periods of unconsciousness, this is what I mean by spirit. If spirit is different in its nature from everything else in the universe and if each of the other classes of things is by itself eternal, analogy would lead us to infer the same uncreatability and indestructibility of spirit also. In all the universe we find transformation, but not annihilation. If spirit is of its own kind, and all the other kinds are permanent in quantity, this, too, must be permanent in its totality.

Having found the class to which electricity belongs, and having, in consequence, some general notion of its nature, let us look into it a little more closely.

In physics, which is the science of energy, we have the following branches:

Mechanics, treating of the energy of masses.

Heat, the energy of oscillations and collisions among atoms.

Sound, the energy of waves of compression.

Radiation, ether waves and streams of electrons.

Electric currents, vortexes of atoms and ether.

Electric charges, ether strains.

Magnetism, ether strains (of another sort).

Gravitation, chemical energy, and a few other forms, whose exact character is not so well understood.

Regarding the general nature of electricity all electricians are practically agreed, but when we come down to particulars there is considerable difference of opinion. In what follows, therefore, I do not claim to speak for any one but myself.

An electromotive force is any force that tends to produce an electric current. Wherever such a force exists the atoms in the vicinity are polarized and tend to be arranged in chains, like little bar magnets adhering end to end. Whether the atoms actually take on such a chain-like arrangement or not depends upon their conditions. The atoms may be combined with one another so firmly that such an arrangement is impossible without tearing them apart from each other. In this case the substance is called a nonconductor, and no electric current is possible. In another case, as in a piece of copper, the atoms are so freely moveable that they promptly assume the chain arrangement, and then if the chains form complete circuits all the atoms in the chain rotate, and this rotation

is what we call an electric current. The polarizing and rotating force (electromotive force may be applied at any part of a conducting circuit, and power may be conveyed along the atomic chains in either direction, in the same way it is conveyed by a shaft in a machine shop. So far as the mere transmission of power is concerned the direction of rotation of the atoms in the chains is indifferent.

There are in such chains only two possible directions of rotation, right-handed or positive, and left-handed or negative. If you stand beside a wire running north and south, in which there is an electric current flowing north, then looking to the north you have the atomic rotations right-handed or positive. Turning toward the south you have the same rotations now left-handed or negative. Every electric current is at the same time both positive and negative, according to the point of view. A positive current going north is precisely the same thing as a negative current going south. In neither is there anything flowing along, either in or about the wire, unless it be energy, which may be conveyed in either direction or in both, by the rotations.

Having clearly in mind this concept of an electric current, it is easy to apply the common laws of mechanics and deduce the laws of electricity. These rotating chains of atoms behave in every instance just as they should be expected to behave. There is no more mystery about them than there is about the shafts, pulleys, belts and gears in a machine shop.

The amount of current in a wire is measured by the total amount of rotation per second in it. Ten atomic chains, each making a million turns per second, give the same amount of current (current intensity) as a million chains, each making ten turns per second. The practical unit of current is called the ampere, and is represented approximately by one million chains whose rotation is such that the surface of each atom moves with the velocity of light, a speed such that the atom would roll round the world seven times in a second.

These atomic rotations do not escape some resistance. The atoms of all bodies are in constant irregular motion, striking against each other. The energy of this motion is known as heat. When the rotating atoms collide with the rest or with each other they increase the velocity of this heat-motion. In other words, they raise the temperature of the conductor. Each time such a collision occurs there is

a loss of some of the energy of the rotating chain that would otherwise be spent in increasing the rotary speed of the chain. In silver, copper and other good conductors there is relatively little of the energy of a current loss in this way. The resistance of these metals is small, and, what is still more interesting, the resistance gets smaller as the metal is cooled. Cooling means decreasing the vibratory speed of the atoms. By and by a point would be reached (if the cooling were to continue) when the heat-motion would all have disappeared. This point is known as the absolute zero of temperature. Now if we mark down on paper ruled in little squares the resistance of silver at various temperatures, as low as possible, and then draw a curve through these points, and do the same thing for several other metals, we find that all the curves meet at a point corresponding to the temperature—273 degrees C. and to resistance zero, indicating that at that temperature all irregular motions of the atoms and all resistance to electric currents would cease. When I tell you that the boiling point of liquid hydrogen is about —235 C. you will see that physicists have actually reached a temperature that is within easy walking distance of the absolute zero.

In order to get a mental picture of the nature of an electric charge we may suppose that at some part of an electric circuit the conductor is replaced by a nonconductor such as air or glass. At the surface of the glass the atoms are turned a little by the electromotive force, but their elastic reaction then becomes as great as the electromotive force, and there is no further motion, the atoms remaining in the strained condition. In glass a little of the turn of the atoms at the surface is carried to the next atoms, and so on. In mica two or three times as much of the turn is passed on to the next atoms, and electricians therefore say that the dielectric power of mica is two or three times as great as that of glass. The dielectric power of silver is nearly infinite, that is to say, the turn is conveyed from one atom of silver to another with perfect freedom.

This condition of strain at a surface is called an electric charge. Its characteristic is that it has an unfailing tendency to turn back to its former condition, and in so doing it makes a current. The charge produced by a positive current, the charge on that surface of the glass in which the rotation is right-handed, is positive, and in untwisting produces a positive current from that place. The charge on the other side of the glass is negative or left-handed, and produces a negative current. Both turns are in the same absolute direc-



tion, however, and if the glass is thin and the electromotive force is strong enough the force on each side helps the other to break the atoms from their attachments and forces them to rotate with violence. This pierces the glass, causes heat and strong ether waves (light). The whole action in that case is called an electric spark.

With this view of an electric charge it is easy for a mathematician to deduce from them the known laws of energy the laws of attraction and repulsion of electric charges, laws which are made the foundation of the older electrical theories.

The luminiferous ether may be thought of as a soft elastic solid. When a chain of atoms in this ether rotates, the ether that is in contact with the atoms is dragged round a little way, and the strain extends outward in less and less degree from the chain. When the rotation ceases the ether drops back to its former place, and the strain disappears. This shearing strain about an electric current is magnetism. Magnetism, then, must always exist wherever there is an electric current; and it may continue to exist after the current that excites it has ceased.

When the lines of atoms rotate first in one direction, positively, then, negatively, the current is said to be alternating. From the sides of an alternating current proceed magnetic waves which resemble waves seen on the surface of water. Since these waves are not symmetrical in all directions about their line of advance from the current, they are called polarized waves. From the end of a row of conducting atoms proceeds a set of cylindrical waves. These are symmetrical about their line of advance, and answer to all the marks of waves of common light. A little reflection upon these two kinds of waves will convince you that though the magnetic waves seem to be magnetic only, and the others electric only, both sets are really electro-magnetic in character. If the ether in the magnetic or plane-polarized waves moves in an elliptical or a circular circuit the waves become elliptically or circularly polarized. All these kinds of light are well known to the physicist. The explanation I have just given of the nature of light is known as the electro-magnetic theory of light.

If you have followed my explanations up to this point you will see that having a clear concept of the nature of electricity the electro-therapeutist is not working in the dark in the use of this valuable agent, but is able to predict even in advance of clinical results the therapeutic effects of electric treatment.—*The American X-Ray Journal*.

# FOURTH INTERNATIONAL DENTAL CONGRESS

Universal Exposition, St. Louis Mo., August 29 to September 3, 1904.

## GENERAL INFORMATION.

The Fourth International Dental Congress, to be held in St. Louis August 29 to September 3, inclusive, 1904, will convene in the Coliseum, a building most favorably adapted to the holding of such a gathering and possessing accommodations so ample that all of the features of the congress will be held under one roof and without interference one with another. This great structure occupies two blocks, between Olive and St. Charles and Thirteenth and Fourteenth streets; it covers an area of nearly four acres, with a floor space for exposition purposes of 300,000 square feet.

The Coliseum is one of the largest and most commodious convention halls ever built, and is practically fireproof. It contains a large theater capable of seating 2,500, which will be used for the general sessions of the congress, and ten additional meeting rooms, furnishing ample accommodations for the simultaneous meeting of the ten sectional divisions of the congress; a large hall for exhibits, covering 9,000 square feet of floor space, practically all of which has been taken by intending exhibitors; and a well-lighted gallery for clinics, capable of accommodating the one hundred chairs which have been provided for that purpose. In addition to the foregoing, numerous committee rooms and telegraph, telephone and postal facilities will be provided in the building, and it is expected also that a well-ordered cafe will be in operation during the time of the congress.

In connection with the building and under the same roof is the Coliseum proper, where 19,000 persons may be comfortably seated, exclusive of the stage, and it is anticipated that this audience room will be used for one of the social features of the congress, constituting an entertainment unique of its kind.

Besides the advantages of its ample accommodations for the Dental Congress, the Coliseum building has the advantage of being located in the heart of the business section of St. Louis, and at con-

siderable distance from the exposition, so that the meetings will be less disturbed by the diverting attractions of the great exposition than if the congress were held within the exposition grounds.

#### ACCOMMODATIONS.

The Local Committee of Arrangements has selected the Hotel Jefferson as the general headquarters of the Dental Congress. This is one of the most fashionable and complete hotels in the United States, and is located on Twelfth street, one block from the Coliseum. In addition to the Hotel Jefferson as headquarters, the hotel accommodations of St. Louis will be sufficient to meet all requirements. The Information Bureau of the exposition has a list of ninety-seven well-established hotels in St. Louis with a capacity of 41,000 guests, at prices ranging from fifty cents a day upward on the European plan and from \$1 a day upward on the American plan. These established hotels have been supplemented during the year 1903 by thirty-five new permanent hotels, increasing the permanent hotel capacity to 67,000 guests, at prices ranging from \$1 a day upward. The exposition management holds the signed agreement of the leading hotels that "rates shall not be increased during the World's Fair period." Prices are now lower in St. Louis than in any other city for similar hotel accommodations and service.

The Exposition Information Bureau's list of 132 permanent hotels includes only those of the better class. There are now 173 hotels, large and small, in operation in the city, and the new hotel enterprises being inaugurated justify the belief that the number will reach 250.

Besides hotels with accommodations for more than 200,000 guests, the Exposition Information Bureau has a list of boarding houses and rooming houses of a respectable character on the street car lines with lodgings for 65,000 guests, and a list of private houses that will let rooms for 20,000 persons. All over the city permanent houses and rooming houses are available to those who prefer rooms away from the crowds, with meals at the restaurants. There are 485 restaurants in St. Louis that have a national reputation for good fare, good service, cleanliness and moderate prices. Twenty of these 485 restaurants can take care of 40,000 patrons.

#### ST. LOUIS AND ITS SURROUNDINGS.

The climate of St. Louis is temperate in summer and most delightful in the spring and autumn. The weather which visitors to the

Louisiana Purchase Exposition may expect is shown by the "normals" at St. Louis taken from the records of the United States Weather Bureau. These "normals" are the averages of the temperatures at St. Louis during the thirty-three years that the Weather Bureau has had a station in St. Louis. The "normals" are as follows: May 66.1°; June, 75.4°; July, 79.4°; August, 77.6°; September, 70.2°; October, 58.7°; November, 44.3°. How closely the actual temperature for any one year follows the normal is well shown by the mean temperature for the month taken by the Weather Bureau at St. Louis during the past year. These temperatures are: May, 71.8°; June, 74.2°; July, 80.3°; August, 76.4°; September, 66.4°; October, 62.2°; November, 63.3°. The weather at St. Louis during October and November is particularly pleasant. It is the "Indian summer" of the Middle States.

St. Louis is the most central and most accessible of the four large cities of the United States. Twenty-seven railways enter it, besides passenger steamers on the Mississippi reaching it from the north and south.

World's Fair cheap rates on railways and steamboats will be offered during the whole exposition season as follows: Season tickets for eighty per cent of double one fare, good to return until December 15. For sixty days, one and one-third fares, not good to return after December 15. For ten days, one fare plus \$2 from points within 250 miles of St. Louis. For fifteen days, one fare plus \$2 from points over 250 miles from St. Louis.

St. Louis is the fourth city of the United States in point of population, having 750,000 people. It presents peculiar attractions for the student of nature, science, history, etc. There are twenty-four public parks, containing over 2,100 acres of well-improved property. The World's Fair grounds lie five miles from the Mississippi river, on the western border of the city, and are reached quickly and comfortably by steam railways and electric lines. Visitors reach the city through one of the largest railway stations in the world; thirty-two tracks enter the station side by side. Most of the hotels, except those in the World's Fair grounds, are within ten minutes' ride of the station, which is in the heart of the business district. Street cars reaching all of the hotels for a single five-cent fare pass the station, and the cab, carriage and baggage system is excellent.

Nearly every member of the Fourth International Dental Congress will wish to see the World's Fair. The Local Committee of Arrangements has already planned a special "congress day" at the exposition, and ample opportunity will be provided for members to enjoy visiting this greatest of all expositions. Congressman Barthold, in a recent speech made before the Congress of the United States, among other things, said: "All in all, the Universal Exposition of 1904 will be the sensational climax of the twentieth century, the grandest victory of peace and civilization, the greatest triumph human genius has yet achieved. To millions of its visitors it will be an academy of learning, an inspiration and an inexhaustible source of genuine delight, and the memories of the 'Ivory City' will live and bear fruit in the ages yet to come."

#### VISITORS FROM ABROAD.

Extensive preparation is being made for the hospitable care and entertainment of all members attending the Dental Congress. The General Committee of Reception, aided by the local committees, is making every effort to provide for the comfort and care of all visitors. Dr. D. O. M. LeCron, Missouri Trust building, St. Louis, chairman of the Permanent Local Committee and Bureau of Information, will be pleased to answer all inquiries regarding the accommodations for those who desire to secure them in advance of the congress. A subcommittee of the General Reception Committee has been appointed to meet and give information and direction to those arriving from Europe and elsewhere at the principal ports of entry of the United States, and to arrange the details of transportation from the seaboard to St. Louis. These committeemen will answer inquiries as to hotels, railways, etc. The subcommittees of the General Reception Committee for the principal ports of entry are:

NEW YORK—Dr. W. C. Deane, 114 E. Sixtieth st., and Dr. Gladstone Goode, 35 W. Forty-sixth st.

PHILADELPHIA—Dr. J. D. Thomas, 1122 Walnut st.; Dr. Joseph Head, 1500 Locust st.; Dr. Julio Endelman, s. e. corner Twelfth and Chestnut sts.

SAN FRANCISCO—Dr. H. P. Carlton, 62 Crocker bldg., and Dr. P. D. Gaskill, Crocker bldg.

NEW ORLEANS—Dr. J. J. Sarrazin, Godchaux bldg., and Dr. R. H. Welch, Godchaux bldg.

BALTIMORE—Dr. Cyrus M. Gingrich, 608 St. Paul st.; Dr. W. G. Foster, 813 N. Eutaw st.; Dr. B. Holly Smith, 1007 Madison av.

In other cities, not ports of entry, but which may be visited by members from abroad, the following committeemen will furnish all desired information:

BUFFALO—Dr. F. E. Howard, 331 Franklin st.; Dr. C. W. Stainton, 47 N. Pearl st.; Dr. S. Eschelman, 421 Franklin st.

CHICAGO—Dr. T. L. Gilmer, 31 Washington st.; Dr. J. W. Wassall, 92 State st.; Dr. W. V. B. Ames, 31 Washington st.

ST. LOUIS—Dr. Wm. Conrad, 3666 Olive st. (chairman Local Committee on Reception and Arrangements).

WASHINGTON—Dr. H. C. Thompson, 1113 Pennsylvania ave., N. W.; Dr. W. E. Dieffenderfer, 616 Twelfth st.; Dr. Wms. Donnelly, 1118 Fourteenth st., N. W.; Dr. W. N. Cogan, "The Sherman."

The following itinerary has been arranged for delegates from abroad desiring to make the trip from New York to St. Louis and return:

Arriving at New York, an opportunity will be offered to all who may desire to visit the metropolis of America. Leaving New York on the New York Central and Hudson River Railway by special train, Pullman coaches and dining car, if there should be one hundred and fifty or more in the party—otherwise by regular train—at about 9 a. m., making a daylight run along the beautiful Hudson River, the Rhine of America, with the Palisades, West Point Military Academy (said by Prince Henry to be the finest military school in the world), and the famous Catskills, on the west bank, with Peekskill, Garrison, Rhinecliff, Poughkeepsie and Hudson, thence to Albany, the capital of the Empire State, on the east—a distance of about one hundred and forty-four miles of probably the most enchanting and varied railway scenery to be found in the world. From Albany along the Mohawk River, through the Mohawk Valley, one of the most picturesque and charming to be found in America, and replete with historic incidents; thence passing through Schenectady, Little Falls, Utica, Rome, and Syracuse, the great salt manufacturing city of the world. From Syracuse the route skirts the Erie Canal (upon which the State of New York is now expending in the neighborhood of \$100,000,000 on enlargements), passing through Lyons, Newark and Palmyra, prosperous cities of from 15,000 to 20,000 population each; then to Rochester, one of the most important inland cities in the country, but interesting chiefly because of the Genesee Falls, the greatest in sheer descent of any on the American continent. From Rochester the route is through a section of the finest fruit belt of the Atlantic coast, passing Byron, Batavia and Depew, arriving at Buffalo, the great electrical city of the world, about 7 p. m., where the night will be spent at the Hotel Iroquois, one of the great hotels of America. A side trip will be made the following day to the ever-beautiful Niagara Falls, twenty miles away, returning to Buffalo for dinner and lodging at the Hotel Iroquois. Leaving Buffalo at 8 a. m. via the Lake Shore and Michigan Southern Railway, famous for the fastest mail trains in the United States service, and also as the route of the "Twentieth Century Limited," running

between New York and Chicago in twenty hours; the Lake Shore Limited, in twenty-four hours, and the twenty-six-hour trains between Chicago and Boston. It is also the railway which, on October 4, 1895, won the world's record for long-distance speed, making the phenomenal run of 510 1-16 miles in 470 minutes, or an average of over sixty-five miles per hour.

This route skirts Lake Erie, passing through Dunkirk, Ashtabula, Cleveland, Toledo, Fort Wayne and Elkhart, arriving in Chicago at about 9 p. m., where the night and following day will be spent in seeing that most wonderful city. Leaving Chicago at 10 a. m. or 10 p. m., via the Chicago and Alton Railway, whose route for the first thirty miles is along the great Chicago Drainage Canal, a public work surpassing in magnitude and difficulties the building of the Suez Canal; thence to Joliet and Springfield, the capital of Illinois and the last resting-place of Abraham Lincoln; thence to Alton, arriving at St. Louis either at 6 p. m. or 7 a. m., depending on whether the time of leaving Chicago is in the morning or evening. At St. Louis the Hotel Jefferson is selected as headquarters for the Congress, with rates from \$7 to \$10 per day, with bath, either for one, two or three in a room, European plan, and reservations should be made not later than August 1. Those desiring less expensive accommodations can secure them near the place of meeting by applying in advance to Dr. D. O. M. LeCron, Missouri Trust building, St. Louis, Mo., U. S. A.

Returning, leaving St. Louis by way of the Pennsylvania Railway, the route is through Terre Haute, Indianapolis, Springfield, Columbus, Pittsburg and Harrisburg, thence to Washington, the capital of the United States, where stop-over privileges have been secured for those who may desire to spend a little time in seeing the most beautiful and interesting city in America. From Washington through Baltimore and Philadelphia, where stop-over privileges have also been secured, and thence to New York.

The rate for the round trip from New York, exclusive of sleeping-car charge and subsistence, is \$32.35. Arrangements have been made for any who may desire to return from St. Louis via the Big Four, Lake Shore and Michigan Southern and the New York Central railways to New York.

Those who desire to take advantage of this itinerary should communicate with Dr. Deane or Dr. Goode of the New York reception committee, notifying either of them of the date of the arrival and by what steamship line.

#### MEMBERSHIP IN THE CONGRESS.

The following are the rules governing membership in the Fourth International Dental Congress, submitted by the Committee on Membership and approved by the Committee of Organization:

I. All reputable practitioners of dental and oral surgery who are entitled to membership in representative State, district or local dental associations where they reside are eligible for membership in the Congress.

II. The State conference committees in America and the national chairman of each foreign country have authority to receipt for the membership fee, which, with the application for membership, shall be forwarded to the chairman of the Finance Committee, Dr. C. S. Butler, 680 Main street, Buffalo, N. Y., who will thereupon forward the official credentials conferring membership in the Congress.

III. If any difference of opinion arises in State committees or national committees as to the eligibility of an applicant for membership, the question shall be referred to the Committee on Membership of the Congress.

IV. The wives and children of the members of the Congress may be admitted upon special request and by consent of the Committee on Membership.

V. A uniform fee of \$10 shall be paid for each membership, and each person whose name appears on the program either as essayist or clinician must be a paid member of the Congress.

J. D. PATTERSON,

Chairman Committee on Membership.

Kansas City, Mo., U. S. A.

Membership in the congress will entitle the holder to all the privileges of debate and discussion of papers and the right to vote upon all questions which the congress will be called upon to decide. It will also entitle the members to participate in all the social functions of the congress under the same conditions as enjoyed by others; the official badges and insignia of the congress; to one copy of the complete volumes of the Transactions, which it is anticipated will comprise not less than four volumes of about 500 pages each. Judging from the material already offered, it is believed that the Transactions of the congress will be the most complete exposition of modern dentistry yet published. This work will be sent to every member, whether he is able to be present at the congress or not.

In order to avoid confusion and crowding of work at the last minute, those intending to apply for membership in the congress are urged to send in their applications at once, which will give time to correct any error should one by chance occur.

All communications of a scientific nature must be submitted to the Committee on Essays for approval before final acceptance for a place upon the program. All communications to the literary program of the congress from foreign countries must receive the approval of the national committee of the respective countries from which they are sent before they can be accepted by the Committee on



Essays of the congress. Each essay must be accompanied by a resume giving the substance of the communication in an epitomized form, which must be in the hands of the Essay Committee thirty days before the opening of the congress, in order to give opportunity for translation and printing in advance of the congress and in order to secure a position upon the official program. All essays, titles of essays and resumes thereof should be forwarded to Dr. Wilbur F. Litch, 1500 Locust street, Philadelphia, Pa., U. S. A., or to the secretary of the Committee of Organization.

#### CLINICS.

All who intend to give clinical demonstrations should communicate with Dr. J. P. Gray, 214 North Spruce street, Nashville, Tenn., U. S. A., chairman of the Committee on Clinics, who will make the necessary arrangements and supply suitable patients as far as may be possible. The rules governing the approval of literary communications by the several national committees will govern also the clinical demonstrations, and all arrangements for clinical demonstrations must be completed by August 1, in order to secure space and a place upon the program.

#### EXHIBITS.

All exhibits of a technical character relating to dentistry will be arranged for by the chairman of the Committee on Exhibits, Dr. D. M. Gallie, 100 State street, Chicago, Ill., U. S. A., to whom all applications should be made for space. All exhibits relating to dental education will be provided for upon application to Dr. Truman W. Brophy, Marshall Field building, Chicago, Ill., U. S. A., chairman of Section IX—Education, Nomenclature, Literature and History.

#### PRIZES.

The Committee of Organization offers two prizes, viz., a handsome gold medal for the best essay on any subject pertaining to dentistry, and a similar medal for the best exhibit of an archæological character illustrating the development of dental art. All essays in competition for the gold medal prize are to be forwarded to Dr. James Trueman, 4505 Chester avenue, Philadelphia, Pa., U. S. A., chairman of the Committee on Prize Essays, without the name of the author attached, and designated by a motto, accompanied by a sealed envelope containing the name of the author and bearing upon its out-

side a duplicate of the motto upon the essay. The committee, after having decided upon the respective merits of the essays and after having selected the one deemed worthy of the medal, will open the envelope bearing the duplicate motto and announce the name of the successful author. The other communications will be destroyed *incognito* six months after the congress closes, unless return of the unsuccessful essays be requested by the authors thereof within that period; or, at the option of the writers, the competing essays which fail to secure the medal may be referred to the Essay Committee for presentation before the congress. The successful prize essay will be published as a part of the proceedings of the congress.

The awarding of the prize for the archæological exhibit will be made by a committee to be appointed specially for that purpose. All exhibits competing for this medal will be cared for by the chairman of the Committee on Exhibits, Dr. D. M. Gallie, 100 State street, Chicago, Ill., U. S. A.

#### MEDAL.

The Committee of Organization has authorized the striking of a bronze medal commemorative of the Fourth International Congress. This handsome souvenir should be in the possession of every member of the congress, as it is not only a beautiful work of art and intrinsically valuable as such, but it will be a memento of the greatest congress of dentists ever held.

The figure upon the obverse side—that of St. Apollonia, which has been selected to typify dentistry—is one which not only serves the symbolic end, but one which lends itself particularly well to artistic treatment. The original design from which the illustration is reproduced is an artistic representation which has both merit and beauty. The symbolism of the reverse of the medal has been given ample consideration, and it is such as should meet with general approval. The universality and international character of the congress movement is typified by the continental divisions of the world. The associated dates at the top of the design are those which embrace the professional life-history of dentistry. Falling gracefully down between the continents is a scroll upon which is to be inscribed the names of the recognized fathers of dentistry in all countries, each national body being asked to nominate the name or names to represent the respective countries. The pose of the eagle represents the auspices under which the congress is to be held, and the palm branch a tribute of honor on behalf of the American profession to the fathers of dentistry.

The execution of the dies has been entrusted to the most expert die-sinker in America. The design is in high relief, and the medal will be struck in bronze, and will be about two and one-half inches in diameter. It will be a finished work of art in all respects, and an attractive and interesting souvenir of the great meeting which it typifies.

The medal will be supplied only to those who make application for it in advance of the congress, as the number struck will be limited to the number subscribed for. The price of the medal without a case has been fixed at \$5. Cases for the medal will be furnished at prices corresponding with their character and quality.

Those who desire to secure one of these souvenir medals will forward the amount of the subscription to Dr. Charles S. Butler, chairman of the Finance Committee, 680 Main street, Buffalo, and the medal will be sent before the opening of the Congress. No medals will be available beyond the number subscribed for in advance of the Congress.

#### PRESENT STATE OF ORGANIZATION.

The chairman of the Committee of Organization, through Senator Depew, has secured from Secretary of State John Hay, a promise to send through our foreign ambassadors and representatives an invitation on behalf of our government to all governments with which the United States is in diplomatic relation to send an official delegate to the congress, and the secretary has received notification that these invitations have been issued.

Upward of twenty nations have signified their intention to take part in this great congress. No fewer than fifteen hundred committeemen are now actively at work promoting the success of the meeting. Every state and territory in the United States is in charge of a state committee, actively at work in developing the details of the congress in a local way. So that the prospect of an unusually large attendance is practically assured, and it is confidently expected that the membership in the Fourth International Dental Congress will be much in excess of any other dental meeting ever held. The number and character of essays already prepared, the number and character of the clinical demonstrations, the magnitude of the exhibits already arranged for, will surpass in these features all previous dental meetings. The work which has been accomplished by the Committee on Education, Legislation and Dental History will constitute the most extensive contributions to these departments yet made.

The social features of the congress are being provided for upon an elaborate plan. Receptions, luncheons and various forms of entertainment are being arranged on a scale commensurate with the magnitude and importance of the meeting, and as much time will be given to the amenities of social intercourse as may be consistent with the more serious features of the program.

The Fourth International Dental Congress is now an assured success, and judged from any standpoint, it will be a meeting which will not only adequately set forth the most recent development of dental science and art, but it will constitute a liberal education in dentistry which no progressive practitioner can afford to miss.

An efficient corps of interpreters has been provided to assist those visiting members who are unfamiliar with the English language.

EDWARD C. KIRK,

Secretary Committee of Organization.

### **IMPORTANT ANNOUNCEMENTS BY LOCAL COMMITTEE.**

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The Local Committee and Bureau of Information wish to dispel from the minds of the profession and all persons who labor under any misconception that the rates of St. Louis hotels are extortionate.

We have investigated the conditions and rates of the leading hotels of St. Louis, and notwithstanding the fact that this city is entertaining a World's Fair, the hotel rates are no higher than in other cities.

We will append a number of the leading hotels and rates of same and call your attention that it is not required of you to put up at any of the hotels mentioned, as there are many hotels and boarding houses in the city where rooms can be secured for from 50 cents to \$2.00 per day. The exact date should be stated in securing rooms.

We append a list of hotels and rates of same as follows:

#### **SOUTHERN HOTEL.**

The American plan rate is \$5.00 per day for room without bath and \$6.00 a day for a room with bath. The rate is \$10.00 per day if two persons occupy the room.

## PLANTERS HOTEL.

Room without bath, occupied by one person, \$3.00 to \$4.00 a day. Same for two persons, \$6.00 to \$7.00 a day. Room with bath for one person, \$4.00 to \$5.00 a day, and for two persons, \$7.00 to \$8.00 a day.

## JEFFERSON HOTEL.

Room without bath, for one person, \$4.00 a day; when occupied by two persons, \$6.00 a day. Room with bath for one person, \$5.00 a day and up; when occupied by two or more persons, \$7.00 a day and up.

## ST. NICHOLAS HOTEL.

Room without bath, for one person, \$2.50 to \$3.50 a day; for two persons, \$4.00 to \$5.00 a day. Room with bath, for one person, \$3.00 to \$5.00 a day; for two persons, \$5.00 to \$7.00 a day.

## LINDELL HOTEL.

Room without bath, for one person, \$2.00 a day; for two persons, \$3.00 a day. Room with bath, for one person, \$3.00 a day; for two persons, \$4.00 a day.

## WASHINGTON HOTEL.

Room without bath, for one, two, or three persons, \$5.00 to \$7.00 a day; room with bath for one, two, or three persons, \$8.00 a day.

## LACLEDE HOTEL.

Room without bath, for one person, \$1.50 to \$2.00 a day; for two persons, \$3.00 a day; room with bath for one person, \$3.00 a day; for two persons, \$5.00 a day.

## TERMINAL HOTEL.

Rooms without bath, for one person, \$2.00 to \$3.00 a day; for two persons, \$4.00 to \$5.00 a day. Room with bath, for one person, \$5.00 a day; for two persons, \$7.00 a day.

## MOSIER HOTEL.

\$1.00 to \$3.00 per day, European plan, with Silver Moon Restaurant attached at very reasonable rates. Located at Ninth and Pine streets.

## ROZIER HOTEL.

Opposite Exposition building, Olive and Thirteenth streets. Rooms without bath, \$1.00 to \$2.00 a day.

## MAMMOTH HOTEL COMPANY.

S. E. corner Olive and Twelfth streets. Can accommodate 2,500 guests per day at rates from 50 cents to \$1.50 per day.

## THE INSIDE INN.

With a capacity for 5,500 people, is within the Exposition Grounds, erected under a contract with the Exposition management, stipulating its rates.

This hotel offers 500 rooms at \$1.00 per day, 500 at \$1.50 a day, 500 at \$2.00 a day and the remainder which are larger, with baths, at higher rates. The Napoleon Bonaparte, the Forest City, the Fraternal, the University, the Kenilworth, the American, the Epworth, the Grand View, the States, the Oakland, the Iowa, the Guaranty, the West Park, the Christian Endeavor, the Visitors, and others, with a capacity for from 500 to 5,000 guests, are within easy walking distance of the World's Fair gates. In fact, we have hotels, boarding houses, apartment houses and rooming houses all over the city, of respectable character and on the street car lines.

An impression prevails that there may be lack of accommodation at reasonable prices. Not only will there be sufficient room for all who come, but the rates will be reasonable. We appeal to the profession of the country to give information respecting the accommodations in a spirit of fairness and justice to St. Louis based upon the above facts.

St. Louis is prepared to care for and welcome all comers and to show them the grandest Universal Exposition of the world's resources and products in the history of man.

The Fourth International Dental Congress is now an assured success. Many foreign nations have signified their intention to take part in this congress. The islands of the Pacific Ocean will be well represented. Their assembling in the center of this great Republic should stimulate every American dentist to action and each individual of this great profession should feel under obligations to help to push the congress to a successful issue. We have our professional record to maintain and act the part of host. As a consequence we should endeavor to sustain the reputation of American hospitality.

Here is the birthplace of the dental college, the most of the inventors, the mechanical geniuses, and the men who have brought about the wonderful advances in our great profession.

We trust the profession of America will take hold with their accustomed vigor, let nothing be undone that will be for the good of the profession, and carry it out with a most liberal spirit to a surprising conclusion.

A list of hotels, boarding houses, rooming houses and private homes with their rates appended will be furnished by the committee to all asking for same. Any other information will be freely given by corresponding to any of the following committee:

D. O. M. LeCron, chairman, Missouri Trust building; Max Fendler, secretary, Missouri Trust building; H. F. D'Oench, Geo. H. Gibson, S. H. Voyles, Orme H. Manhard, Joseph G. Pfrff, G. S. Kitchen.

### **FEDERATION DENTAIRE INTERNATIONALE.**

The next (fourth annual) meeting will be held in the Coliseum building, St. Louis, Mo., August 26 and 27.

The first session will convene under the presidency of Dr. Charles Godon, at 11 a. m. There will be a meeting of the Executive Council on Thursday (the 25th), at the Hotel Jefferson, at 10 a. m.

The section on Education will meet at 3 p. m. Friday.

The section on Hygiene and Public Dental Service will meet at 3 p. m. Friday.

The section on International Dental Press will meet at 4:30 p. m. Friday.

The officers of the sections are:

Education—President, Dr. T. W. Brophy; vice-presidents, Dr. E. C. Kirk, Dr. W. B. Patterson and Dr. O. Zsigmondy; secretaries, Dr. M. Roy and Dr. R. B. Weiser.

Hygiene and Public Dental Service—President, Dr. W. D. Miller; vice-presidents, Dr. Cunningham, Dr. Forberg, Dr. Jenkins and Dr. Rose; secretaries, Dr. R. Heide, Dr. Sauvez and Dr. R. B. Weiser.

Committee on International Dental Press—President, Dr. E. Forberg; vice-president, Dr. A. W. Harlan; secretary, Dr. E. Papot.

Executive Council—President, Dr. Charles Godon; vice-presidents, Dr. A. W. Harlan and Dr. W. D. Miller; secretary, Dr. E. Sauvey; treasurer, Dr. F. Aguilar.

Members—Dr. Geo. Cunningham, Dr. E. Forberg, Dr. R. B. Weiser, Dr. J. E. Grevers, Dr. F. Hesse, Dr. Klingelhofer.

On Behalf of the Federation—A. W. Harlan, vice-president, 1122 Broadway, New York city.

June 16, 1904.



### A CHARITABLE DENTAL CLINIC.

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We clip the following from the New Haven Sunday Register of June 19th, 1904 :

The dental clinic established at the New Haven free dispensary, corner Congress avenue and Cedar street, is now complete and in operation. Already the clinic has demonstrated its need as shown by the large number of patients who have applied for treatment, which consists of all operations pertaining to dentistry, with the exception of gold fillings, artificial dentures and regulating.

The clinic furnishes the dental profession in New Haven an opportunity to perform charitable work for the worthy poor who are unable to make any compensation for such service. While the medical profession has been doing much work in this line for years, the opportunity has not been presented to render free dental service except in a very limited degree in private practice. Public service is now recognized as a necessity, and the dentists are ready to meet it.

A few months ago, at the solicitation of the medical men connected with the dispensary, the matter of conducting a free dental clinic was presented to and discussed by the New Haven Dental society, resulting in nearly a unanimous vote to accept the proposition. Dr. William H. Carmalt, director of the surgical clinic, appointed Dr. Edward S. Gaylord of this city chief of the dental clinic, and through his efforts, assisted by Dr. George E. Nettleton, the room at the dispensary has been equipped with all the latest improved appliances and instruments required, the chairs, spittoons and bracket tables having to be made especially, white enameled, as required for all modern equipped hospitals, electricity furnishing the motive power for two dental engines.



The dentists have been enabled to establish this public clinic through the liberality of three public spirited citizens, Clarence R. Hooker, Miss Elizabeth R. Hooker and Donald R. Hooker, all children of the late Frank H. Hooker.

The clinics are held two afternoons a week, Tuesdays and Thursdays, from 2 until 4 o'clock, or until all the patients presenting themselves are cared for. The operators (two in number each day) are appointed by the director, Dr. Gaylord, six months in advance, so each man is prepared to be prompt in attendance, and with the number who have expressed a willingness to give their services four half days for each operator during the six months will be required. Should a greater number of patients present themselves than can be properly cared for in two afternoons more time will be designated and additional operators assigned.

The card system of keeping record is adopted, and every operation can be referred to at any future time by number, name and residence of the patient, also name of the operator, so that an interesting record for the year is anticipated by the dentists, who consider themselves pioneers in this work for the New England states.

This movement to perform organized charitable work in dentistry for the worthy poor who are not able to pay for such service is an idea worthy of emulation in other communities. In Chicago and several other cities where dental colleges are established, a large number of poor people (and some who are not so poor) are taken care of by advanced classes of college students. But this is reciprocal sort of work rather than charitable, for the students need and must have some practical experience with the real live subjects before they can be turned out with a certificate of qualification to enter general practice, and the patients need the services which the students can perform under able instructors. In a city as large as Chicago, however, and in smaller places where there are no dental colleges, there are thousands of people who never give a care to their teeth except to submit them to the forceps when they get into trouble; or submit to having them knocked out by some fellow workman with crude implements that may be picked up around the shop or home, because they have not the money. These people, and especially their children, often suffer untold agonies with their decayed teeth, because from the meager family income enough can-

not be spared for the usual fee for extracting, much less for treating in a way that the offending tooth may be saved to years of comfort and usefulness.

We have no doubt that whenever the liberality of a community or of some of its charitable members would provide and fit and equip a place for such work, enough of the dental profession would be found who would willingly contribute their time and skill—a few hours each month—to fill the clinical hours complete throughout the year. But, as in New Haven, the institution and operation of such places must be thoroughly organized with definite plans and bona-fide pledges on the part of those who provide the means and those who contribute professional services, else the enthusiasm to be found at the beginning of such a beneficent undertaking would in the usual way of such things lag until the thing fell into desuetude.

Compensation of some sort is looked for in almost any undertaking we may engage in, and if satisfaction is not felt in some way for effort expended, however beneficently inclined we may be, the time comes when we tire of such endeavor. On the part of the dentist contributing services in a work of this kind, if he looks at it rightly, and even selfishly, his labor of love would not only redound to his credit personally, but the educational feature of the work that teaches the care and preservation of the teeth, instead of parting with them as often as painful disturbances occur, would in due time bring substantial returns to him, and his professional brothers as well; for the poor of to-day are as a rule the well-to-do or rich of to-morrow and able to pay for dental services and will do so, having realized the value of well-preserved teeth.

R. B. T.

**DR. HENRY C. HOWELLS.**

Dr. Henry C. Howells, 87 years old, for many years a dentist at Hamilton, O., died very suddenly of heart failure at his home June 23. Dr. Howells was an uncle of William Dean Howells, the novelist, who often visited his home in that city.

The following resolutions have been adopted by the dentists of Hamilton on the death of the late Dr. Henry C. Howells:

Since it has pleased God in His infinite wisdom to summon to His heavenly home our dear brother, Dr. Henry C. Howells, one of our most earnest and active members of our profession, be it

Resolved, While we do not understand all God's ways, we humbly submit to His divine will, in that He has called our dear brother so suddenly to the eternal world.

Resolved, That we acknowledge that through his removal from our midst we have lost one whose life work was an inspiration for better things in the profession; also that we extend to the bereaved family and relatives of the deceased our sympathy and commend them to the comforting love and mercy of our Heavenly Father.

Resolved, That a copy of these resolutions be forwarded to the bereaved widow and family by the committee on resolutions of the dentists of the city of Hamilton—S. H. Mullikin, James E. Rothenbush, W. B. Caldwell, Hall & Craven, F. A. Ayers, C. G. Lockwood, Griffis & Griffis, C. I. Keely, A. T. Good, Florence DeShaso, D. E. Shehan, J. B. Stewart, E. Leroy Henes, A. L. Hollowell.

**DR. S. M. BLAKE.**

Dr. S. M. Blake, aged 88 years, of Bellows Falls, Vermont, died at the home of his son, Henry L. Blake, after an illness of several months due to old age. Dr. Blake was editor of the Bellows Falls Gazette, an early newspaper, for a number of years, about 1840. He is survived by six sons and one daughter.

**DR. J. H. SHERMAN.**

Dr. J. H. Sherman died June 24 in the hospital at the Soldiers' home in Marshalltown, Ia. Dr. Sherman had practiced dentistry in Storm Lake, Ia., for the past 30 years, but about a year ago suffered a paralytic stroke and never recovered so as to be able to go to the office. Besides his widow he leaves three children, all of whom reside at Storm Lake.

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**DR. CHARLES L. STEEL.**

Dr. Charles L. Steel of Richmond, Va., died June 19 at the Virginia hospital after an illness of about three weeks. Dr. Steel was taken sick at his home in Ashland, and a little later was taken to Richmond for treatment. Charles L. Steel was 44 years of age and was a native of Richmond, where he spent his entire adult life as a dentist. He was a master of arts graduate of the Richmond college, and at the time of his death was a professor of dentistry. He was a son of Dr. George B. Steel, himself a prominent dentist; and his mother, long since dead, was a Miss Hartman of Richmond. Dr. Steel married a Miss Harris of Baltimore some years ago and she, with one child, Charles L. Steel, Jr., survives him. Dr. Steel lived in Ashland during the summer months, but always kept his offices in this city, where he enjoyed a large practice.

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**DR. JONATHAN TAFT.**

Whereas, In the death of Dr. Jonathan Taft, whose death occurred at Ann Arbor, Michigan, October 15, 1903, the dental profession has lost a most valuable member; one who gave generously of his knowledge for the advancement of his ideals; a noble manhood, ideal operations and faithful services; a man, unselfish, gifted, kind and true, using his God-given talents for a noble purpose—serving man; and one whose fidelity and Christian character must ever be an example to the coming generations, of an ideal dentist. Be it

Resolved, That we, his followers and members of the Northern Ohio Dental Association, in annual convention assembled at Cleveland, June 7-9, 1904, express and record our appreciation of his noble life, and generous contributions to the dental profession, and urge upon every member to live the life this gifted man lived, in order to bring to pass his conception of an ideal dental profession.

C. R. BUTLER,  
CORYDON PALMER,  
F. S. WHITSLER,  
Committee.

C. D. PECK,  
Recording Secretary.

## REPORTS OF MEETINGS

### SOCIETY ANNOUNCEMENTS

#### NATIONAL SOCIETY MEETINGS.

National Association of Dental Examiners, St. Louis, Mo., Aug. 25, 26, 27.

Fourth International Dental Congress, St. Louis, Aug. 29 to Sept. 3, 1904.

#### STATE SOCIETY MEETINGS.

Maine Dental Society, Bangor, July 19, 20, 21.

New Jersey State Dental Society, Asbury Park, July 21, 22, 23.

North Carolina Dental Society, Morehead City, June 22-25.

Wisconsin State Dental Society, Manitowoc, July 19-21.

#### NORTHERN IOWA DENTAL SOCIETY.

The dates of our annual meeting will be July 26, 27, 28, 1904, at Waterloo, Iowa. A good program is being prepared. Railroad rates can be secured at this time. Visitors welcome.

C. L. TOPLIFF, Secretary.

#### WISCONSIN STATE DENTAL SOCIETY.

The thirty-fourth annual meeting of the Wisconsin State Dental Society will be held in Manitowoc July 19-21, 1904. A cordial invitation is extended to all ethical practitioners to meet with us.

W. H. MUELLER, Sec'y,

A. G. FEE, President.

Madison, Wis.

#### NORTHERN INDIANA DENTAL SOCIETY.

The date of our next annual meeting to be held at Huntington, Ind., has been postponed to October 18 and 19, 1904.

A program of unusual interest has been completed, a synopsis of which will be announced in the next issue of this magazine.

Don't forget to read it.

OTTO U. KING, Sec'y.

King Building, Huntington, Ind.

**FREEPORT (ILL.) DENTISTS ENTERTAIN.**

Freeport dentists entertained Drs. G. V. Black, T. W. Brophy and C. N. Johnson June 25. A clinic was held during the forenoon and in the afternoon the local and visiting dentists enjoyed a picnic. A number of dentists from Rockford and other points were present.

**MONTANA STATE DENTAL BOARD.**

Dr. George W. Pelzer of Great Falls has been re-elected president of the State Dental board, the other officers being Dr. B. J. Keenan of Butte, vice-president; Dr. D. J. Waite of Helena, secretary, and Dr. A. J. Squires of Dillon, treasurer.

**BUFFALO DENTAL SOCIETY.**

The Buffalo Dental society, at its annual reunion at Niagara Falls June 18, elected the following officers: President W. W. Paull; vice-president, Fred A. Ballachey; secretary, C. A. Bradshaw; corresponding secretary, P. C. Hammersmith; treasurer, Simon Eschelman.

**MICHIGAN STATE DENTAL ASSOCIATION.**

The Michigan State Dental association held its annual meeting June 28-29 at Lansing. F. H. Essig of Dowagiac was elected president; John J. Green of Ionia, vice-president; L. A. LeGro of Three Rivers, secretary; J. Ward House of Grand Rapids, treasurer, and E. A. Honey of Kalamazoo, trustee. The Indiana Ohio and Michigan Society will meet in Detroit next year.

**DENTAL EXAMINERS NAMED.**

The following successors on the Utah State Board of Dental Examiners to A. S. Chapman and George E. Ellerbeck, whose terms have expired, have been appointed by the governor: S. W. Wherry, Ogden, and E. A. Tripp, Salt Lake City. W. H. Bucher, a third member of the board, resigned and the governor reappointed A. S. Chapman.

**MINNESOTA STATE DENTAL ASSOCIATION.**

The Minnesota State Dental association closed its annual meeting in St. Paul June 18. The following officers were elected: President, J. O. Wells, Minneapolis; vice-president, C. E. Parrott, St. Paul; secretary, G. S. Todd, Lake City; treasurer, H. M. Reid, Minneapolis; chairman executive committee, J. F. McCrea, Minneapolis; master of clinics, R. W. Berthel, St. Paul.

**SOUTHERN WISCONSIN DENTAL ASSOCIATION.**

The Southern Wisconsin Dental association was held at Janesville June 29. E. M. Carey of Beloit was elected president to succeed R. J. Hart of Janesville; J. J. Wright of Milwaukee, first vice-president; C. T. Pierce of Janesville, second vice-president; C. W. Collver of Clinton, secretary, and W. G. Hales of Mineral Point, treasurer. Racine was selected as the city where the next annual session should be held.

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**TO THOMAS FILLEBROWN.**

Professor of Operative Dentistry and Oral Surgery,  
From the Administrative Board of the Dental School of Harvard  
University,

In Commemoration of

His Twenty-one Years of Efficient Service to Dental Education.

27th June, 1904.

Dr. E. H. Smith, dean of the Harvard Dental school, in a few complimentary words, presented the pitcher to Prof. Fillebrown. There was much applause and cheers. Prof. Fillebrown expressed his thanks in appropriate terms.

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**HARVARD DENTAL ALUMNI.**

The annual banquet of the Harvard Dental Alumni association was held June 28 at Portland, Me. About 160 persons were present at the dinner. The retiring president, Charles E. Perkins, presided. One of the pleasantest features was the presentation to Prof. Thomas Fillebrown by the administrative board of a silver pitcher in commemoration of his 21 years of service as professor in the Harvard Dental school. He retires this year. On the pitcher is the following inscription, which was suggested by President Eliot:

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**IDAHO STATE DENTAL SOCIETY.**

The Idaho State Dental society concluded its session in Boise June 17 with an elaborate banquet, which was largely attended by local dentists and visitors to the convention. Nampa was selected as the meeting place of the society a year hence, the session to begin on the second Tuesday of June. Dr. J. B. Burns of Payette was re-elected president of the society, this making his third successive election to the position. The other officers of the society were

chosen as follows: Vice-president, Dr. E. L. Burns of Boise; secretary, Dr. A. W. Cate of Boise (re-elected); treasurer, Dr. K. C. Joyner of Nampa.

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### **SOUTH DAKOTA STATE DENTAL SOCIETY.**

The South Dakota State Dental society held its annual meeting June 7-8. The following officers were elected: President, R. J. Lamme of Mitchell; vice-president, J. A. Robertson of Sisseton; secretary, A. W. Fossum of Aberdeen; treasurer, L. S. Straight of De Smet. The first three of these, with Dr. McCartney of Mitchell and F. E. Fields of Sioux Falls, constitute the executive committee and the committee on program for the next annual meeting, which will be held at Mitchell.

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### **M'CLEAN COUNTY DENTAL SOCIETY.**

At a special meeting Monday evening, June 20, at Bloomington, Ill., the McLean County Dental Society met and elected the following officers for the coming year:

President—B. M. Van Dervoort.

Vice-President—J. W. Crigler.

Secretary—J. S. Reece.

Treasurer—M. D. Young.

Executive Committee—O. J. Jarrett, J. W. Kasbeer, C. P. Holland.

Board of Censors—H. A. Stevenson, W. A. Land, A. M. Wilkes.

Five new members were added to the roll, making a total membership of thirty-two.

Truly,

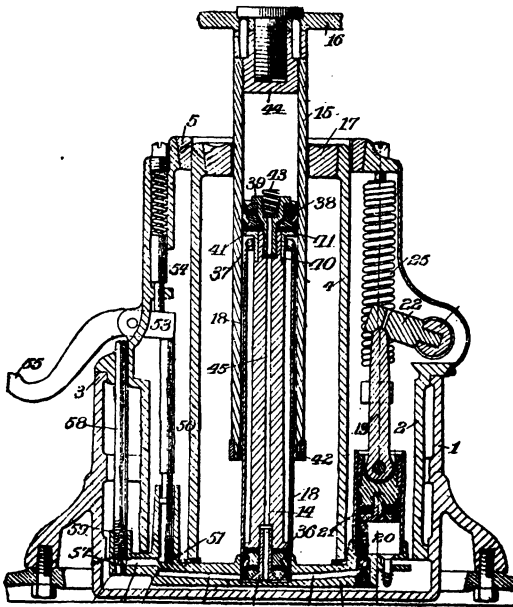
DR. J. S. REECE, Sec'y.





# DENTAL PATENTS

762,686. Dental Chair. Frank Ritter, Rochester, N. Y. Filed May 6, 1903.  
Serial No. 155,955. (No model.)



*Claim.*—1. The combination with a base, and a stationary cylinder, of an elevating cylinder adapted to support a chair, provision for guiding said elevating cylinder, movable connected pistons in the cylinders, a conduit connecting the latter and a pump for supplying liquid to the cylinders.

2. The combination with a base, a guiding section therein and a stationary cylinder, of an elevating cylinder adapted to support a chair and connected pistons movable in both cylinders, a conduit connecting the latter and a pump for supplying liquid to one of the cylinders.

762,231. Gold-Saving Dam. Edward R. De Normandie, Claysville, Pa. Filed July 3, 1903. Serial No. 164,152. (No model.)

*Claim.*—1. A gold saver for dental purposes consisting of a rubber dam having an opening therethrough, a pocket located on the rear side of the dam and having the mouth thereof coinciding with the edges of the said opening, and a guard applied over the mouth of the pocket on the front side of the dam.

2. A gold saver for dental purposes consisting of a rubber dam provided with a rearwardly projecting pocket having the mouth thereof accessible at the front side of the dam, and a loose guard applied to the front side of the dam over the mouth of the pocket and extending above the latter.

3. A gold saver for dental purposes consisting of a rubber dam provided with a pocket on the rear side thereof and formed with an opening there-through coinciding with the mouth of said pocket, and a guard of the same material as the dam applied to the front side of the dam over the opening and projecting above the latter.

760,943. Dental Manikin. Edwin P. Wright, Richmond, Va. Filed Aug. 25, 1903. Serial No. 170,706. (No model.) Fig. 3.



FIG. 1.

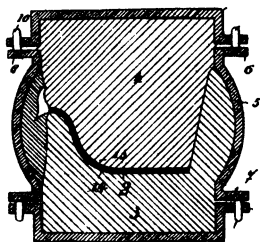


FIG. 2.

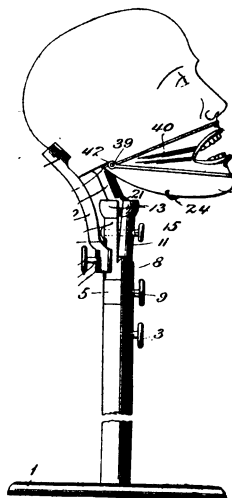


FIG. 3.

*Claim.*—1. A tooth plate or holder, having its outer edge provided with a groove adapted to receive the bases of a series of teeth, etc., combined with a band forming the outer wall of the groove and terminating in threaded studs, a cross-piece perforated to receive and connect the studs, and nuts for the studs.

761,155. Process of Making Dental Plates. Lucien Eilertsen, Paris, France. Original application filed Feb. 25, 1901. Serial No. 48,681. Divided and

this application filed Oct. 9, 1901. Serial No. 78,148. (No specimens.) **Fig. 2.**

*Claim.*—The herein described process for covering on both sides perforated metal plates of the character set forth with thin layers of celluloid, which process consists first in obtaining the required space below the metal by means of a sheet of stamped soft metal placed beneath said plate before fixing the teeth or hooks, then covering the metal basis first with celluloid on one of its surfaces and then on the other and placing said foundation twice in plaster, once with the right side up and once the reverse way, then covering the metal foundation with celluloid, first on one side and then on the other, in the manner described, using the mold in three parts, in the middle portion of which is fixed the metal piece held merely by the hooks and teeth, the two surfaces to be enameled being uncovered at the same time, thus allowing the metal plate to be covered with celluloid without displacing said plate.

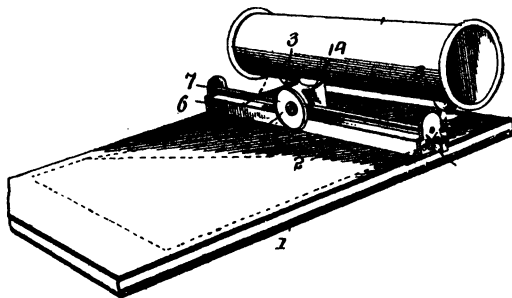
762,289. Crown-Tooth. Frank H. Davis, Chicago, Ill. Filed April 10, 1903.

Serial No. 151,992. (No model.) **Fig. 1.**

*Claim.*—1. An artificial crown for a tooth comprising a facing having a suitable keyway or slot with walls inclined inwardly from the back of said facing, a backing for supporting said facing, and a key fastened upon said backing and having an inclined head and slidably fitted in said keyway to hold the facing in position.

760,800. Rubber dam holder and cutter. Frank R. Nice, Lansing, Mich.

Filed Sept. 12, 1903. Serial No. 173,011. (No model.)



*Claim.*—1. In a device of the class set forth, the combination of a base, a tubular holding means at one end of the base, a clamping device hinged at one end on the base in advance of the holding means, and a slidable head carried by the clamping device and having a rotating cutter thereon.

## PERSONAL AND GENERAL

### **New Dentist in Zion.**

C. A. Rominger of Reidsville, N. C., has gone to Zion City, Ill., where he will do dental work for Dowie's followers.

### **Death Following Extraction.**

As the result of blood poisoning following the pulling of a tooth, Charles Myers, Evansville, Ill., died recently. He was ill four days.

### **Returned From Manila.**

Dr. W. W. Skidmore has returned from Manila, where he has been practicing for a number of years. He will go to Minneapolis, where he expects to locate permanently.

### **An Outing.**

The Eighth District Dental Society of New York, the Buffalo Dental Association and the Cleveland Dental Association enjoyed an outing June 25. The program included a visit to Niagara falls and a dinner at the International hotel. The rest of the day was spent in sight seeing.

### **Suspect Arrested.**

Paul Rowe, who claims Indianapolis as his home, is under arrest at Muncie on suspicion of being the party who robbed dental offices in Anderson, New Castle and Muncie recently. Rowe was arrested at Marion. He had in his valise a large amount of gold leaf and dental supplies and about \$300 in cash in his pocket. Rowe claims he is a traveling salesman for a wholesale dental supply house, but fails to give a very satisfactory account of himself.

### **Disappeared.**

Dr. C. W. Creath, located at Toledo, has left the city, and his wife and friends are ignorant of his whereabouts. Mrs. Creath, who is a stenographer and bookkeeper, had her first intimation of her husband's departure when she returned home Monday evening and found a note on the front door stating that he had left the city on account of the illness of a relative.

### **Stole Diamonds.**

Royal Donmeyer, a young dentist, who went to St. Louis recently from Johnstown, Pa., pleaded guilty to stealing diamonds valued at \$5,000 and valuable papers from the home of W. B. Hayes, 4850 St. Louis avenue, when

brought before Judge Taylor. He was sentenced to two years in the penitentiary.

The sentence was made two years instead of five on recommendation of C. Orrick Bishop, assistant prosecuting attorney, because Donnemeyer had no previous criminal record.

Donnemeyer met Mr. and Mrs. Hayes in Indianapolis. They invited him to their home on St. Louis avenue and he accepted. One afternoon, a month ago, while Mr. Hayes was in the bathroom, Donnemeyer stole five diamonds, valued at \$5,000, together with valuable papers, from Mr. Hayes' clothing.

Donnemeyer appeared in the Hayes home a few minutes after the robbery and appeared greatly shocked at the report of Mr. Hayes' loss. He accompanied the latter to the police station, and there, despite Mr. Hayes' protest, was placed under arrest.

While in jail his mother came from Johnstown and after a long interview kissed him good-bye. As they kissed Donnemeyer transferred the jewels from his mouth, where he had them concealed, to his mother's mouth. She then left the jail. The transfer was effected in spite of the fact that guards were closely watching the pair.

A few minutes after leaving the jail the mother reached the Hayes home and restored the diamonds. She begged Mr. Hayes not to prosecute her son, but he refused. Donnemeyer's plea of guilty Monday morning followed.

Donnemeyer appeared in court alone. He made his plea of guilty without betraying any emotion and after being immediately sentenced was taken back to jail.

When Donnemeyer was searched after being arrested no diamonds were found on his person. He is reported to have told the police that he held them in his hand while being searched and afterwards transferred them to his mouth, where he concealed them during the time he was in jail.

### Robberies.

E. D. Glasco, Brazil, Ind., June 27; loss, \$75. F. W. Shores, W. E. Moore, T. E. Howson, R. P. Allen, H. H. Madigan and G. R. Treanor, all dentists of Saginaw, Mich, sustained losses from \$50 to \$75 through burglars July 2. Dr. Gandee, Parkersburg, W. Va., July 26; loss probably \$50. S. A. Long and F. E. Roberts, South McAlister, I. T.; loss, \$100. Chas. Reel, Harrisburg, Pa., June 24; loss, \$50. E. W. Reiss, Terre Haute, Ind., June 25; loss, \$150. Owen, at Terre Haute; loss, \$40. C. F. Williams, Terre Haute; loss, \$30; June 26. Five dentists in Anderson, Ind., suffered the loss of gold and instruments June 27; they were Drs. Schellenger, Orland, Costello, Stapish and Brookins. C. J. Phelps, Detroit, Mich., July 2; loss, \$50. A. J. Wolfert and A. G. McCornie, at Cincinnati, June 18; loss, \$20. Kaulback & Kenney, Kansas City, Mo., June 19; loss, \$200. Lyman & Lyman, J. H. Solecki and Dr. Souders, Topeka, Kan., June 18; loss from \$50 to \$100 each. H. Gillham, Kansas City; small loss.

**June Weddings Among Dentists.**

Dr. R. E. Armstrong of Baltimore, Md., and Miss Elizabeth Armstrong, same, June 28.

Dr. Walter Hall of Petaluma, Cal., and Mrs. Abbie Montrose Treadwell of Los Angeles, June 20.

Dr. W. R. Laviolette of St. Athens, Vt., and Miss Bertha Slayton, June 15.

Dr. James McCorkey of Canton, Ohio, and Miss Rebecca Douds, June 20.

Dr. H. E. Schellenger of Anderson, Ind., and Miss Emma Corinne Dungan of New Castle.

Dr. George W. Snyder of Baraboo, Wis., and Miss Susan J. McClure of Bloomington, Ill., June 29.

Dr. Harry G. Kittell of Troy, N. Y., and Miss Elva Doty of Springfield, Mass.

Dr. Charles Williamson of Wheeling, W. Va., and Miss Mary Alexander.

Dr. F. E. Linder of Edwardsville, Ill., and Miss Grace Daniels of Vandalia, Ill., June 3.

Dr. Robert D. Woelk of Belleville, and Miss Marie Beineke of Belleville, Ill., June 20.

Dr. Frank Dindley of Kenosha, Wis., and Miss Clara Norton, June 9.

Dr. Gideon M. Dempsey of Grafton, Ill., and Miss Hattie Richardson of Marine, Mo., June 19.

Dr. Chas. E. Slagle of Abingdon, Ill., and Miss A. Myrtle Shoop, June 27.

Dr. Harry Cameron Benson of Detroit, Mich., and Miss Irene Graves, June 29.

Dr. Frederick W. Rose of Cooperstown, N. D., and Miss Emma R. Hewer, Guelph, Ont.

Dr. C. L. Tompkins of Grand Forks, N. D., and Miss Jessie Doffmeyer of Grand Forks, N. D.

Dr. F. D. Bittle, Texarkana, Ark., and Miss Guendolin Kiser, June 28.





## PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

### PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.  
(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois.)

#### CHAPTER XVII.

The next class of gold inlays deserving our attention is where several surfaces of tooth structure are decayed and demand restoration. In this chapter we will consider the molars and bicuspid, leaving for future consideration the anterior twelve.

It not infrequently occurs that a bicuspid is decayed on both the occlusal and distal surfaces, as illustrated in Figs. 1, 10 and 12; while the adjoining tooth, either distal or mesial, is missing. In such cases the cavity construction is considerably different from cases decayed as shown, and the adjoining teeth *in situ*. This may not be clear to you—but I hope to make it plain before finishing this article.

While attending a recent clinic in an adjoining state, I had the pleasure of seeing a clever operator insert a porcelain filling or inlay in an upper left 2nd molar, 1st molar having been extracted five years ago. The patient not wishing to wear a plate or allowing bridge work to replace the lost molar, she insisted that since the missing molar was the only lost tooth in her entire denture she preferred to leave the space unsubstituted. She displayed good judgment, no doubt; but now as to the inlay that the clinician inserted. The decay on the occlusal surface was small, possibly size of gauge 11, while the mesial surface decay was somewhat larger—gauge 5—the two cavities were connected with something more than fissure opening. The operator immediately, by use of chisel and burr, cut through the occlusal surface, broke down the enamel and created a large cavity—nearly size of Fig. 13; drilled and burrowed into the tooth structure with impunity—indicative of positive reckless disregard for the value of the sound tooth structure. The patient endured it all—notwithstanding her jealous regard of

dental structure. The operator so prepared the cavity that he could insert the inlay occlusally. The fault or criticism to be found with this method of procedure was that this class of cavities—and they are indeed numerous—is that this gold inlay could have been inserted mesially (Figs. 2 and 7), hence saving the natural strength of the occlusal surface, besides preventing the display of the mammoth gold inlay. The huge block appearance made a decided mechanical impression. It lacked harmony of outline; it was devoid of the curves which lend beauty to the finished product; its square corners and its cubic character were elements which were exponents of a craft quite other than those which are found in the curriculae of artistic dentistry. Of course, I am not contending that all our inlays should give evidence of Hogarth's line of beauty, but I advocate the appreciation of the essentials of artistic curves.

In order to insert an inlay mesially or distally and spare occlusal structure, a few principles of mortising are required (Figs. 4 and 5). First of all the walls must not deviate from the marginal lines of the cavity; they can deviate towards a common center, but if deviated from this point insertion or elimination are made impossible. The cavity can enlarge from its occluso-distal or mesial margin and be expanded into a wide and enlarged base, as in Figs. 7 and 6.

In the preceding chapter I outlined the process of applying the gold pellets in conforming the gold to these cavities (Fig. 5), but in Chapter XV, my method of ribbon inlay can be used to advantage. Just get an approximate measurement of the cavity wall, make band of equal measurement and insert. This leaves the distal or mesial surface, as the case may be, still free; then burnish the band to fit the walls and remove and solder the gold so as to complete the mesial or distal surface. Then cement into position and after twenty-four hours proceed with disks and stones to smoothen the margins and surfaces. By this method you have carefully restored the case and shown appreciation for tooth structure.

This method of cavity preparation is only applicable when the adjoining tooth or teeth are missing and these cases are indeed more numerous than at first calculation is suspected.

The inlay in these cases needs not be of such outlines as to approach the pulp chamber. It can have a step-effect and avoid the pulp and adjacent structures; this step does not require any change in the method of construction, but requires slight alteration of the procedures.



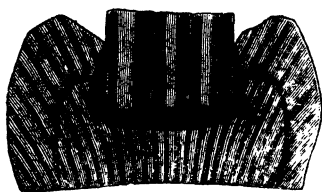


Fig 7.

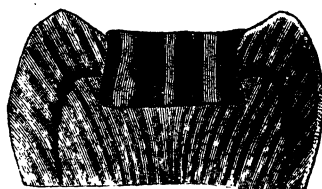


Fig 8.

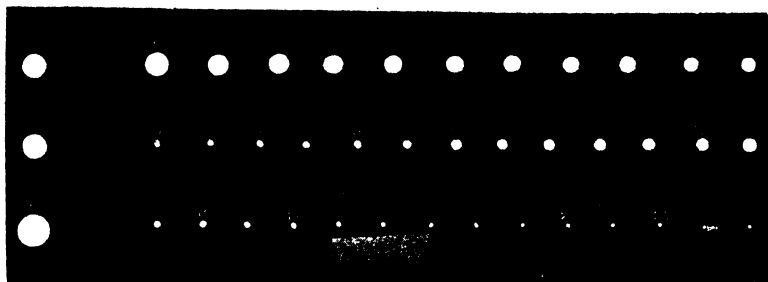


Fig 9.

S.S.

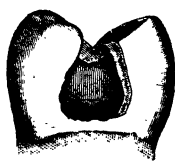


Fig 1.

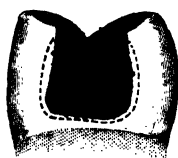


Fig 2.



Fig 3.

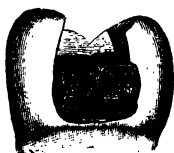


Fig 4.

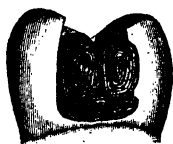


Fig 5.

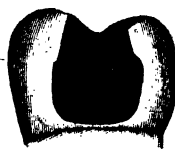


Fig 6.

It must not be forgotten that this method of inserting inlays as here advocated lessens the technique. I only advocate less display of gold, more accurate fit and saving of tooth structure on occlusal.

Dr. Hofheinz, of Rochester, calls attention to a unique gold inlay as follows:

"Where I have extraordinarily large labial cavities, especially in canines or unusually large inaccessible buccal cavities in molars, where the pulp might become endangered by the presence of zinc oxyphosphate, I have been in the habit of making an inlay of gold entirely dependent on gutta-percha for its retention. I thought I was original in this method, but in looking over the Transactions of the Odontological Society of 1878, I find an article by Dr. J. Edward Line, of Rochester, in which he says: 'The device consists of a thin plate of platina to the under side of which is attached a wire hook, from the inside of which project two or more curved lugs punched from the body of the plate. I find these caps useful in simple crown cavities in temporary molars, and in compound cavities that involve more or less of the grinding surface; also useful in permanent molars, particularly where the dentist wishes to favor the formation of new dentin.'

"He used gutta-percha to fill the cavity, and with a hot instrument pressed them into the mass. Dr. Line (or Dr. Quinby, who antedated him about a year, as Dr. Line tells me) would to-day use cement in most of the cases quoted in connection with these inlays. My method of making them differs from that suggested by Dr. Line. I take no impression of the cavity. After preparing the cavity I make a large and distinct bevel around its margin. I then fit a piece of gold, about 28 gauge, against the cavity, being careful that it thoroughly covers the bevel. I increase the depth of the cavity, wherever least dangerous to the pulp, and solder small pins taken from porcelain teeth in a direction to correspond to the deepening of the cavity. (Fig. 14.)

"The inlay is then polished and made somewhat thinner toward the edge, and is now ready for its position."

We have all seen the cases shown in figures 10, 11, 12 and 13. When the gold inlay is employed the principle of extension for prevention, so essential in operative work, needs not be seriously considered since the method and character of work is entirely different. Enlarging the cavity of Fig. 12 from gauge 9 to gauge 5 would be cruel and reckless. I have reproduced Dr. Case's gauge



Fig 10



Fig 11

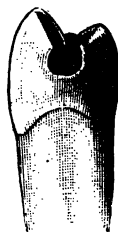


Fig 12



Fig 13

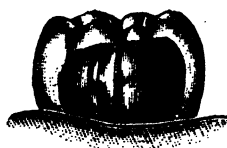
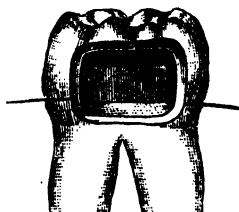
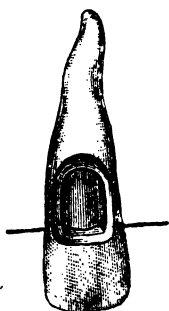


Fig. 14.

so as not to be misunderstood as regards actual sizes of cavity. We need a system which will allow us to be accurately understood.

It is my aim to give all methods of gold inlay, as are regarded practical and will be delighted to receive further encouraging words on this very interesting subject.

(To be continued.)

**PORCELAIN CROWNS.****By J. M. Thompson, Detroit, Michigan.****CHAPTER IX.**

The all-porcelain veneer crown is one of the most beautiful crowns ever given to the profession. It was conceived and born in the office of Dr. C. H. Land, of Detroit, and has been enthusiastically adopted by many of the best men in this city. Among the first to bring out its good qualities was Dr. E. B. Spaulding, who has described it so beautifully in the June Items of Interest.

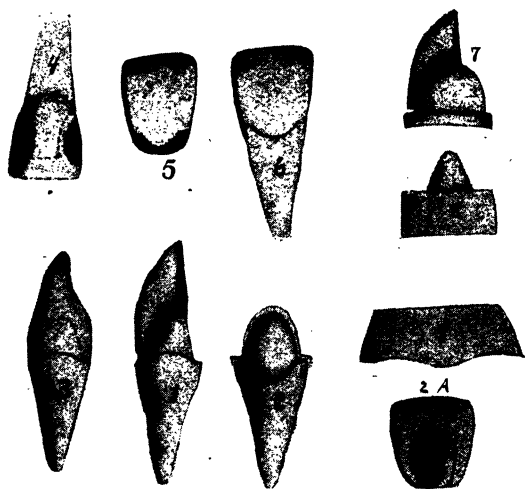
It has so many desirable qualities and so few objectionable ones that it may be truly called an ideal crown. It is particularly adapted to the restoring to beauty and usefulness, malformed incisors and cuspids and is without doubt the greatest thing in that line known at the present time. Its larger field is in preserving alive for an indefinite period pulps which would otherwise have to be sacrificed in teeth which have been filled and refilled with gold. It is extension for prevention on a grand scale and once done, and well done, there will be little necessity for looking for more trouble from teeth so treated.

Gen. Lawton said that the good Indians were the dead ones, and we might well say so of some pulps; but we all know that a tooth in its normal condition, or as nearly so as we can get it, is far less worry to us than a pulpless one with its canal filled ever so well.

The inlay enthusiast may claim that he can take a tooth where the gold worker leaves off and save the pulp and restore the beauty of the tooth as well, which may be a fact; but when it comes to the question of durability he falls short of meeting the requirements. On the other hand when we have placed upon a carefully prepared tooth, a beautiful veneer of porcelain that we can (without fear of the consequences) tell the patient to use it as if it were the real tooth, we have rendered valuable service and one for which we can expect to be well paid.

To the inexperienced the operation of removing the enamel from a tooth seems almost extreme cruelty; but the patients who have had these crowns made report very little trouble and if any it is about the same as that experienced in the putting in of a gold filling. Another point which may seem hard to believe is the fact that these crowns are very strong. This is due to the fact that they fit so accurately that when cemented into place they become part and

parcel of the tooth. The porcelain in the manufacture of bath-tubs is very strong, yet it is a very thin veneer closely adapted to the base upon which it is made. When one of these crowns can be driven into a pine board ( $\frac{1}{4}$  of an inch in thickness) with sufficient force to split it, without injuring the tooth whatever, we can say with a good degree of certainty that it is strong enough.



The first step in the preparation of the tooth for the veneer is to shorten it as much as consistent with proper consideration for the pulp. This is easily accomplished with a small knife edge stone, making a sharp groove parallel to the cutting edge both labially and lingually and excising the end or it may be entirely removed with the stone. There is much to be gained by this, as it gives the general form or a definite idea of what is to follow. Taking for example a lateral incisor which has been filled mesially and distally we have remaining only a small portion of the labial and lingual walls.

The remainder of the preparation may be accomplished with or without the rubber-dam, but in cases where it can be easily adjusted the results are more apt to be perfect. The shoulder on the labial surface is easily secured by first establishing its outlines with a

small round or an inverted cone burr and may be finished as perfectly as for a gold filling. Having finished this the next step is removing the remaining enamel. This is probably the most painful part of the work and depends more upon the means used than anything else. Small, true running knife edge carborundum stones (with the accent upon every one of the already named attributes) are undoubtedly the things indicated and should be discarded the moment the edge is gone. In this work, time and expense may be saved by using a discarded diamond disk for sharpening the wheels as they wear away, and at the same time keeping them perfectly true.

By serating the surface of the tooth the enamel is readily removed and when this is done the surface may be cut down still more with an enamel burr. Each case is a law unto itself and different methods are indicated as they present themselves. The man with a fertile mind will find a way to overcome the impression in the mind of his patient that removing the enamel is the worst thing that could possibly happen.

After the tooth has been prepared it should resemble Fig. 1 and Fig. 2, and is ready for the fitting of the facing. This should be done very accurately and the entire work of getting the proper shape, size, and position finished before the matrix is made. The facing should not touch the platinum at the gingival margin, but should leave a little space for new porcelain to be filled in. It is much easier to secure a perfect fit in this way. If the grinding has been carried too far it may be corrected by placing some moist porcelain upon the ground surface and gently pressing the facing into position upon the tooth. It is then placed in the furnace and fused nearly to the glazing point. With the facing closely fitting the tooth the platinum cap does not disturb the position of it in the least, and when the two are removed from the tooth they are easily held in the pliers without fear of change of shape.

As an aid to securing a perfect matrix an impression may be taken in Dental Lac and a model of the same material, or of cement, made upon which the platinum may be prepared.

The impression method is never as good in porcelain work as that done directly upon the original, and unless it is an impossibility to complete the work at one sitting should never be used to turn out completed work. Approximate results may be obtained, but the cap should always be placed upon the tooth for its final burnishing.

In cutting the metal for the matrix, time and material are saved by first making a pattern with tin foil. The fewer seams the closer the fit and the stronger the crown. Fig. 9 shows general outline of metal as cut to form the shell. This is formed over a tapering mandrel and a short lap joint made, using a small piece of pure gold as solder, it not being necessary to have the gold flow the full width of the metal. The soldering should be confined entirely to the portion of the cone which fits over the shoulder, doing away with the stiffness in the part which is to be burnished. Slip the cone into place and with the first finger of the left hand press the metal against the lingual surface and with pliers gently draw it up against the sides, at the same time gradually burnishing the platinum over the shoulder. As the metal begins to lap toward the apex it is trimmed away and what remains may be turned back upon the rest as a binder, thus doing away with soldering.

Fig. 7 is meant to represent a completed cap but is too regular in outline, and Fig. 8 shows the fireclay block upon which the case rests while in the furnace. The facing and cap are easily removed from the tooth by placing a small piece of wax (of a sticky nature, which can be warmed in the fingers sufficiently for the use intended) under the facing and over the lingual portion of the cap. When both have been taken away and we are sure that the position of the facing has not changed, by placing the pliers with one beak resting upon the porcelain and the other on the inner side of the cap, the wax can be removed and the body added immediately.

The porcelain used in this work is the same as described in a preceding chapter. It is produced by pulverizing Consolidated Co.'s teeth and when properly fused is very beautiful. It is always advisable to add only a portion of the backing at first and tack the facing to the cap. This gives an opportunity for a trial in the mouth, and if found to be correct is ready for finishing. Sometimes as many as three bakings are necessary to secure the desired thickness and contour as such a thin layer is more or less liable to fissure during the first fusing.

Having finished the porcelain work the platinum is removed by pulling it from the margins toward the center, and if it adheres too strongly to the bottom can be cut out with a burr. After fusing Dr. C. H. Land's Media over the inner surface it is ready for setting.

Before the crown is cemented the tooth should be thoroughly cleansed and coated with cavity lining and with some cases with nitrate of silver. Let the same laws that govern the colors of cement used in inlay work apply in setting these crowns and the results will be extremely satisfactory.

**OPERATIVE DENTISTRY.**

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

**CHAPTER XVI.****THE INSERTION OF GOLD FILLINGS.**

In the preceding chapter the qualities of tin and combinations of tin and gold were discussed. While tin has preservative qualities superior to gold, the latter, on account of its more pleasing color and its very perfect and strong cohesive qualities permitting of building out secure contours far beyond the cavity, has come to be used more extensively than any other metallic substance, barring amalgams, of course, used on account of the inability of many people to pay for something more expensive.

Gold, and more especially cohesive gold, has peculiarities, known to all dentists, that requires the most expert manipulation to place in the cavity of a tooth so as to hermetically seal the same; and hermetically sealed it must be, to be of value in stopping decay and preserving the tooth.

Non-cohesive gold and some of the crystal gold preparations may be forced to the walls of a cavity by the wedging process; that is, for instance, placing in the gold in considerable quantity with but little compression until ready to insert a cone or wedge shaped instrument in the center, forcing the gold toward the walls in all directions, and repeating the process until the pointed instrument can no longer be inserted. In the case of non-cohesive gold the pieces or rolls are left protruding from the cavity a short distance, this surplus being condensed upon itself after lateral condensation is completed. Or, if the rolls of gold are shorter the filling may be finished out with cohesive gold well anchored in the center of the non-cohesive by beginning its use before the center opening is closed and carrying it over the whole surface, making it mechanically unite with the non-cohesive with deeply serrated pluggers, dispensing with them and using finer serrations as soon as good anchorage is gained.

With crystal gold (which is always cohesive) the forcing out against walls is done after a somewhat different manner. That is to say, a mass may be crowded to the walls by a wedging process, but the crystals begin to weld slightly at the first compression, and more and more as pressure is increased until it is eventually solid,



and this must be done before more is added. It is the shifting of crystals before they are finally welded that permits of spreading of this extremely cohesive gold. With cohesive foil when two surfaces come in contact they stick or cohere. Thus in ribbons, rolls or pellets every point of contact unites, and for that reason it becomes more and more rigid with every movement or slight compression early in manipulation, and of course that is what makes this gold so difficult to work successfully except by experts who know how to manipulate it to avoid undue cohesion until placed and ready to "nail" fast. The dental profession is made up of a goodly number of experts in many ways, but the average operator is not an expert in making gold fillings that will not leak.

Adapting cohesive foil to the walls of a tooth is a different proposition from adapting non-cohesive gold foil and requires greater care and effort and know-how ability. No extensive mass can be safely adapted to a wall because of the rigidity it assumes before it is condensed thoroughly, which resist adaptation. Therefore, cohesive gold foil has to be used a little at a time, placed here and there about the cavity as required and condensed thoroughly before another piece is added. To adapt it to the walls requires careful, painstaking effort with properly shaped instruments; and here is where more operations fail to make a perfect filling than in any other part of the work; for, without fully comprehending how the gold may *appear* to be tight to the wall when it is not, and that it requires intimate knowledge of all its peculiarities and a special application of skill to overcome its faults, no good preservative work can be done. When gold begins to weld, becoming more and more rigid with every slight movement, it is easily understood how it may bridge from one minute prominence to another, either against the tooth wall or the surface of gold it is being attached to, and in consequence a filling is made, possibly, full of minute caverns. If the walls are surely hermetically covered these little caverns would do little harm in the body of the filling until we approach the surface, where the gold must be in absolute contact as each layer is placed or the finishing will be full of pits, which should never be. Never can a fine finish be given to a gold filling that develops pits with every sweep of the disks or finishing strips and all efforts to burnish them out will fail. The only thing to do is to avoid them by making the filling solid by proper condensation in the first place. Another cause of pits is in using pluggers with too deep serrations and gold that

has not the proper cohesive property. The result under such conditions is that while the finish may be fair—never perfect—at the time of finishing, particles of gold scale off (not being welded perfectly) soon after exposure to the fluids of the mouth and the wear and tear of mastication. It is a fact that one rarely sees a filling that has been some time in the mouth, though doing good service, possibly that has not some signs of disintegration, and especially in the occlusal of molars and bicuspid. And that is to say, that perfect operators are rare. If every condition had been as it should have been and manipulation strictly correct, no such tendency to disintegration would show and there would be no scaling and consequent pits; for it is possible to weld gold in making a filling almost as perfectly as though fused, and that is the way some operators do their work. Their fillings will show a surface after ten years of service with no more wear than would be apparent on the fused surface of any pure gold under like conditions.

Such work is not done by using large, thick pellets but by using thin folds, or pieces cut from such folds, properly annealed and placed and carefully condensed with pluggers of every fine serrations, working back and forth across the filling in even layers which one may *know*, as he goes along, has been condensed at every point. If every operator would take the same pains as does the one who produces ideal work he would produce similar results.

In observations of occlusal cavity fillings how often one sees an otherwise good, well made filling in molars showing evidence of leak and failure along the mesial wall at one or more points, and this due to failure to adapt the gold perfectly to that wall. The position in which the operator stands to fill such cavities influences the direction of force used to condense the gold, being easier against the distal wall which stands facing him, and requiring special effort to bring force against the nearest or mesial wall. Especially is this the case with force produced by a blow from a mallet. So such things must be taken into account and special effort must be directed to the difficult point or points. It is better to have the adaptation and condensation made by intelligent and thorough hand pressure than by misdirected and imperfect malleting. There are some operators who make good and satisfactory cohesive gold fillings entirely by hand pressure, though, of course, the mallet is almost universally used in some form or another. It is the comprehension of the entire situation and the intelligent application of whatever method that

may be used that brings out perfection. It is the lack of these things and foolishly applied effort that brings about failure or only passable results. It is often careless or haphazard methods, in direct violation, it may be, of all the essential rules that govern the material method to be employed. The filling of a tooth to not only check decay and restore lost portions, but to withstand the strain it may be subject to in mastication which are often decidedly severe, is often nothing more or less than a scientific engineering operation, requiring, comparatively, the same thought, calculation and intelligently directed effort that larger engineering operations do in other walks of life, and cannot be successfully done without it.

It is not the purpose of the writer to detail here all the steps of inserting a gold filling because it is presumed that every reader knows, or thinks he knows, how to do it; and yet many fail in some points and wonder why. Very few operators do as well as may be done in condensing gold—that is, so that it stands up and wears like fused gold, or like a gold inlay that is soldered up. To be sure, any pure gold would not stand the wear that a filling (inlay) of 22 K. solder would, but it can be so condensed as to never scale, chip or pit, but always present a smooth, hard surface. If this article can call to some operator a realizing sense that he does not make the best gold fillings and give him a hint as to why, it will do all it is intended to do. When we say gold must be so adapted to the walls that it absolutely seals them against infiltration of the fluids of the mouth, and he knows that he fails to do that in many instances that have come back to him, he knows that he should correct his method in some way, and that way is to get out of the old rut. If his fillings pit in finishing, or come back pitted after a time, he may know that his way of annealing his gold, or his way of condensing it and particularly towards the surface, has not been correctly done and needs his thought and care to correct it. Sometimes it is the serrations of the plugger that are faulty; sometimes it is using a small point when a larger one is indicated, and sometimes it is using too large a one where a small one is indicated. Too large a point used in filling up the cavity does not thoroughly condense, but tends to the bridging that has been spoken of, while a nice surface can never be attained by use of small condensing points. The writer has seen some operators fill and do everything from start to finish with the same point. They could hardly expect to do ideal work in that way. Dr. C. N. Johnson, than whom there are few, if any, better expo-

nents of the art of filling teeth with gold, says: "Give your attention to the placing and adapting your gold to the walls and margins of the cavity and the center of the filling will usually take care of itself." That is to say, that when your thought and effort is concentrated upon these vulnerable places, the center of the filling naturally comes along with the rest and if there are any imperfections in condensation let them be buried deep in the center where they will not show and will, probably, do no harm.

In building out large restorations and contours the layers of gold should be laid on at right angles to the axis of the tooth and most of the force of condensation should be applied in the direction of the axis rather than across it. Operators who follow this course, keeping the filling squared up, so to speak, will rarely have fillings cleave off through ordinary wear and tear; but if one gets into the habit of sloping the fillings so that the layers lie diagonally, if there be a weakness in the cohesion or welding there will be greater chances of a break. In building up a brick wall it is kept square or level. If one side was raised a little higher than the other layer after layer until there was a slope to the layers the wall would not safely support itself. The same principle is involved to some extent in building up a contour filling. Keep it square up.

In using crystal gold for fillings, some principles are involved that are not common to either cohesive foil or non-cohesive foil. No gold is so cohesive or can be made so more than crystal gold, and yet it will sustain a considerable compression before those crystals begin to come together so intimately as to begin to become rigid as does cohesive foil, and hence its working qualities are in some measure like non-cohesive gold inasmuch as there is a spreading out to considerable extent before cohesion prevents or counteracts. This is a quality that is very desirable in many instances, since it is much easier to anchor the first gold introduced into a cavity than with gold that simply condenses down upon itself without any lateral displacement of the mass to speak of.

The ease with which a cavity could be stuffed full of it (in a way) gave rise to the name plastic gold, which is a misnomer and is misleading. It is not plastic in the sense that amalgam is, for instance, but being so named it led many to think that it could be plastered into a tooth as soft amalgam may be and with no more skill and painstaking, which is a great mistake. That some such work was done which was utterly worthless led the profession at large some years

ago to shun and even condemn crystal gold. Anything we use is capable of abuse, including crystal gold. Cohesive gold foil is susceptible to jamming into a cavity in a way that it will stay for a time and permit of finishing up with a brilliant effect, but that is not worth anything as a preservative filling, and too much of that sort of work is hurriedly done for the good reputation of the profession.

All that may be done with foil may be done with crystal gold and with as much perfection, but its peculiarities must be understood and it must be handled accordingly. Too large a mass must not be used any more than with cohesive foil, but a larger mass may be used in some places than could be consistently used of cohesive foil. When a large mass is used in a large occlusal cavity in a molar, for instance, a large round or oval faced hand pressure plugger should be used to press first the center gently, then gradually extending the pressure outwardly until the whole has been condensed gently at first and in the end as hard as can be, resorting to malleting if one desires; though very satisfactory hand pressure fillings can be made, as the cohesion under such pressure is very perfect if due care is used. With the oval-faced plugger, finely serrated, and a rocking motion with hand pressure, very dense fillings may be made and with some saving of time. It stands to reason that if such a spongy mass of fiber or crystal gold is not condensed and caused to cohere thoroughly into a solid mass, that porosity would invite the infiltration of the fluids and if the filling has been so slightly condensed as to permit of infiltrating then disintegration soon follows and the filling is worthless. If the operator will disabuse himself of the idea, if he has it, that he can plaster crystal gold in a careless and unworkmanlike way he can use the substance with a great deal of satisfaction in many places, some operators doing fine work using it to the exclusion of all other kinds. There are several kinds of crystal gold, and the writer prefers that kind that hangs together rather than the kind that crumbles too easily. The latter is good if it can be confined or held together until pressure brings about cohesion.

There is a form of crystal gold that is almost or quite dust like, but confined between layers of foil. This can be cut up into pieces as desired for each cutting welds together the edges of the foil again. Care must be taken to not break or puncture this envelope until it is in place. Then condensation is done with as broad a point as possible. After it is pretty thoroughly condensed by hand it may be

malleted and smaller points may be used. This is called crystalloid gold and is really the most expansive under pressure of any of the crystal forms of gold. The dust like crystals or grains act like so much sand under pressure at first, displacing each other with a lateral tendency until finally the pressure welds the particles together. The result is that this spreading causes the mass to wedge in between the walls and stay just where it is put like crystals of wax if such a simlie can be made. The only trouble with this gold is the waste if the foil envelope is prematurely punctured or broken, noticeable especially in the sifting out of the crystals by gravity when used in upper teeth. In the lower teeth it does not make so much difference as the crystals remain in the cavity and are condensed and not wasted. Once conversant with the way of handling this form of gold without breaking the envelope any operator will certainly be pleased with it. Some operators prefer it to any other gold for all gold fillings.

(To be continued. )



**DENTAL THERAPEUTICS.**

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**CHAPTER XVII.**

Heretofore we have discussed some of the pharmacological features of the heavy metals as they are so classed, but at this time we will take up the discussion of an agent that is quite common in certain natural forms and bears a very intimate relation in the science and art of treating disease. We have reference to iodine, or as it is sometimes called, iodinum. Probably no agent has claimed such universal reputation and has been tried in more diseases than iodine and its various combinations. It is a substance that is obtained ordinarily from sea-weed and sponges. It is endowed with certain qualities, acting as a local irritant, and in many respects resembles chlorine and bromine. Being less volatile than the agents named, the fumes are much less irritating. Its action upon the skin is irritating, leaving a sensation of heat and itching. If in a concentrated form or in a strong solution it causes cellular necrosis, which manifests itself in the form of a blister. It penetrates deep into the layers of the skin, and small quantities may be taken up into the circulation and possibly carried to some remote part of the body, most likely to some lymphoid tissue. On the mucous membrane its action is considerably increased over that of the skin. If the fumes of iodine are inhaled for any considerable length of time it will cause smarting and swelling of the parts, increasing the cellular activity of the mucous cells, with an increased flow of mucus. If small quantities be taken into the stomach it causes slight irritation, nausea and a general uncomfortable feeling; and if any great quantity be present in the stomach it will cause vomiting and diarrhea. In the case of iodine poisoning the alimentary canal becomes very much irritated, and if a fatal dose is taken it causes collapse, failure of the heart's action, and respiration is very much interfered with. The iodine is easily detected in the contents of vomit or stools. Subcutaneous injection in tumors and cysts, a practice that has been quite common, also causes pain and irritation, and sometimes indicates the constitutional symptoms of iodine poisoning. Wherever this method is followed the result is usually necrosis and gangrene.

The absorption of iodine into the tissue takes place in the form of an iodide. A combination of proteids with that of iodine is a very loose chemical combination, and is readily decomposed when dialyzed or when heated to the point of albumin. When iodide is in combination with albuminates the starch reaction test is a failure. The excretion of iodine from the body is chiefly by the kidneys, however, certain quantities are excreted in the saliva, perspiration, milk, and a certain quantity in the respiratory tract. When iodine is taken into the stomach it seems to be eliminated in the form of hydriodic acid. In the normal animal body iodine has been observed in the free state, and most likely is taken from the stomach in the form of hydriodic acid and is broken up in the tissues and can be excreted as free iodine. In the normal animal organism, especially that of man, considerable traces of iodine is found to be present in the thyroid gland, and there forms an organic compound known as iodothyryn; and if iodine is administered this chemical combination is increased in the thyroid gland.

Small quantities of iodine can be administered internally without causing any of the general constitutional symptoms, other than that of local action. If the administration is continued for any great length of time it will, however, give rise to the typical symptoms of iodism. If solutions of iodine be applied to the skin the general effects may follow in the form of eruption, which does not always confine itself to the locality to which the application is made, but a general eruption of the skin is likely to follow in the form of a rash, papules or erythemata. If iodine be administered or applied to the thyroid gland, as in the case of goitre, there is usually a rise of temperature with an increased pulsation, and the general diminution of the thyroid gland. In many of these cases where the administration is continued for some time a peculiar nervous condition is manifested in the patient, the patient becomes restless, irritable and anxious, with tremor and loss of sleep, with the general characteristic appearances of chorea. All of these symptoms are present in fatal cases.

Irritation of the respiratory tract is not so common after the administration of iodine as when the iodides are administered, but in either case if continued for any length of time, oedema of the larynx and expectoration of watery secretion, tinged with blood is observed by some authors. It has been observed, however, that albuminuria makes its appearance. This is by no means common.



The effects of iodine on metabolism is a question that has not by any means been settled. Some authors claim that it has no effects, while others claim that it is beneficial because it assists in the elimination of nitrogen. It might be borne in mind in this connection that it is possible to affect different individuals in a different manner, depending more or less on the thyroid gland. A few cases of fatal poisoning have been recorded following the injections of large quantities of iodine into cysts. The report of the case of Rose is one that is sighted in almost all the literature upon this subject. The most common symptoms were those of thirst, with constant vomiting, with the presence of iodine in the vomited matter; coldness of the skin cyanosis, a small weak pulse, skin eruption and death occurring on the tenth day. In those cases of poisoning of man a swollen condition of the mucous membrane of the stomach and intestines, fatty degeneration of the liver, heart and kidney. If iodine be brought in contact with blood outside of the body it is said to dissolve the red blood corpuscles and directly combining with the hemoglobin of the blood.

Iodine as a therapeutic agent has been administered internally in a number of chronic diseases, such as syphilis, goitre and tuberculosis of the gland and other organs; but of late years it has been administered in the form of an iodide. In the cases of goitre and many other glandular enlargements, it has been injected and administered internally with beneficial effects. In chronic inflammatory conditions such as tubercular glands, pleuritic effusion and rheumatic joint diseases, especially those of tubercular origin, iodine has been applied locally by painting on the skin. In such cases it is found to relieve the congestion of the subcutaneous tissue, and in this way causes absorption of the exudates, which has more or less influence on the deeper tissues and organs of the body.

However, in this connection it would be well to state that nothing of a specific nature in its action on the tissue is established. Perhaps its local application in chronic inflammation is one that indicates that its usefulness in this particular is beyond question. The injections of iodine in cystic cavities has been followed with considerable success. It causes inflammation and adhesions of the walls of the cavity and causes obliteration of the cystic sack. But it must be borne in mind that the poisonous effects will follow such administrations if continued for any length of time. Its former use in

such diseased conditions as ovarian cysts has been displaced since abdominal surgery has come into such common use. However, many practicing physicians still practice the injection in cases of hydrocele; and in such cases some beneficial effects have been reported. In cases of cysts of the spinal cord and brain, injection of iodine is followed with beneficial effects. Some authors claim that the membrane surrounding such cavities act very slowly to the actions of iodine, consequently its action is not so violent and the restoration of such pathological lesions is more or less benefited by such treatment.

Out of the number of therapeutic compounds of iodine there is none that has had such universal use as that known as iodoform ( $\text{CHI}_3$ ). The chemical structure of this agent is not at all like that of chloroform. It is an insoluble powder of a yellow, crystalline substance, having a very disagreeable odor. The use of this agent as a surgical dressing has met with a great many strong advocates. Its poisonous effect is that of discomfort, depression and anxiety. The patient is very restless, usually complains of giddiness, headache, and fails to get sufficient quantities of sleep. The iodoform may be detected in the mouth and nose of the patient; pulsation is generally increased, followed by rise of temperature. If the administration is continued for any length of time under such circumstances, melancholy, hallucination, and in some cases attempt at suicide are recorded. If the patient does not find relief from such conditions there is mainly delirium, extending over several hours or days, and eventually followed by collapse and death. In a few instances permanent dementia and insanity has been reported. In some cases of chronic iodoform poisoning the patient immediately falls into a deep sleep, followed by stupor and collapse, and also manifests cerebral excitement. In the milder forms of poisoning from iodoform the patient complains of headache, unpleasant taste and odor.

The effects of iodoform on lower animals, like dogs and cats, is usually followed by profound sleep and stupor, with a loss of excitability of the spinal cord and brain. No other poison has elicited such symptoms in these animals. Post-mortem examination after death by iodoform poisoning shows that the liver, kidney, heart and muscles are found to have undergone a fatty degenerative process.

Since it is recognized that the absorption and excretion of iodoform takes place as an alkaline substance, it can readily be under-

stood why iodine is decomposed in the presence of alkaline fluid, and readily goes into solution when brought in contact with proteid matter. When iodoform is brought in contact with proteid solutions it is readily disassociated and the iodine ions readily combine with albuminates, and as such circulates in the fluids of the body; it is usually eliminated in the form of an iodide and principally in the urine, although other secretions of the body may contain traces of this agent. When iodoform is in the body to any great extent, sufficient at least to cause symptoms of intoxication, there is beyond question a complexed condition existing; for traces of iodine have been found in the fluids of the body for at least a month after the administration had been withdrawn.

Iodoform seems to have an anaesthetic action when applied to wounded surfaces, which may account for its soothing sensation to wounds, especially to those of a painful nature. Iodoform became an accepted antiseptic dressing and was thought to contain germicidal effects equal to that of carbolic acid, if not even greater, but cultural experiments with pathogenic bacteria have demonstrated that the pathogenic bacteria are but little affected in the presence of iodoform. It was thought at first that the iodine from the iodoform was split off and that the iodine would attack the germs, and thus arrest their development. This may be true with certain saprophytic bacteria, but experiments conducted in various laboratories have shown that iodoform has but little, if any, effect on the cellular activity of bacteria, and in fact in some instances by experiments carried on by myself, I come to the conclusion that many forms of bacteria developed more rapidly when small traces of iodoform was put in the culture media than when they grew in the absence of iodoform.

Future investigations may explain the actions of ions on proteid substance, and thus give a better understanding of just how many of these agents act as antiseptics and disinfectants. Many have observed that in the treatment of wounds, especially those where the loss of vital activity of the tissue cells have extended some distance from the surface of the wound, that iodoform gives a marked beneficial effect. In such cases many writers have attributed this to the action of the iodine on the cellular activity of the tissue, and established a decided stimulation on the part of the surrounding cells, and in this way made them more able to resist the action of bacteria and their cell products.


The therapeutic value of iodine for its local application in the oral cavity is beyond question of considerable value, for there is probably no disease of the mucous membrane in which iodine cannot be applied with some beneficial effects. Its combination with other agents is one that must be borne in mind. Applied in an ordinary small quantity it is a perfectly safe remedy. Iodoform is one of the best means of applying iodine, especially if it is a large moist surface or in case of granulating surface. At one time iodine combinations was considered one of the most useful agents for painting on tubercular glands or tubercular ulcers; for it was considered of all the diseases indicated, those of a tubercular nature was the most benefited.

The internal administration is through a combination in which the iodides are present, and the agent that is most common for internal use is that of potassium iodide. The pathological lesions in which these agents can and are most beneficially used are where it is possible by the administration of such agents, the functional activity of the body as a whole or a local area as a part can be made to accept certain ions, and in that way combine chemically with the tonic properties that is confined in the tissue and eliminated from the cellular structure, or where the agent enters into the combination of the protoplasmic structure, and in this way be able to throw off or combat the effects of other tonic substance.

That is truly the science of therapeutics, and possibly there is no other agent that seems to have more elective affinity for certain protoplasmic structure than that of iodine, and especially if it be glandular tissue; for it is very well exemplified in the action of iodine on the thyroid gland. It matters not how or where iodine enters the body, it seems to go to the thyroid gland, and in fact the thyroid gland contains a certain quantity of iodine, but if the smallest quantity of iodine be administered it manifests itself in the thyroid gland.

In our next paper we will take up and discuss potassium iodide in a somewhat detailed manner.

(To be continued.)



## ORIGINAL CONTRIBUTIONS

### TOOTHsome TOPICS.

By R. B. Tuller.

No. 12.

Business tact,  
And business tacks.  
Having experienced the business end of some,  
I feel competent to write a paper on the subject.  
Quite as competent at least as some of my confreres.  
I have sat on the subject for about nine-tenths of a second,  
And I *feel* that I got some *pointers* that make me well up on  
the topic.

I was not slow getting up either. There are *some* things I can do  
quickly.

I do not want to be taken as specially gifted and conceited on this  
point, for I have seen others rise with the same rapidity.

There are tacks and tacks—and tacts, and the reason I have taken  
this tact in this matter, that is something of a tax to elucidate, is—

That I have discovered that all these things enter decidedly into  
dentists and dentistry when opportunity affords.

You know about the undertaker? (Beg pardon, I know he be-  
longs to the doctor, but being as we are—or are we?—specialists  
in medicine, I think I may make mention of him.)

Well, this undertaker went to lay out a man who wore a wig.  
Fix the head in the coffin as he would the wig would rise up from  
the scalp.

He finally asked the widow if she could not find a little mucilage.  
She went to look for it and came back saying she could'n't find any.

"Never mind," said Mr. Undertaker, "I found a tack."

Now, wouldn't that *overtake* you! There was tact for you, but  
I don't consider it undertaking. Now, the way *we*, most of us, en-  
gage with tacks might be called *undertaking*.

*But* to the point.

I know a dentist who mended a broken jaw. Oh, no, not with tacks, though he did think of using double pointed tacks.

It was his first and only. He called in several of his dental confreres and got advice—gratis.

Armed with this and frequent counsel as the case went along, and another man to set and wire the jaw, he brought his patient through to a fair recovery.

Of course we all have to have our first and often our only, and we all have to have a little help—may be.

But no sooner had my friend's patient recovered than he sat down and wrote a paper, "My Method of Treating Mandibular Fracture."

Here, too, counsel and advice and suggestion helped to make a fairly good, readable paper.

He was now ready for an invitation from his society, and business tact led him to drop a hint that it was about his turn.

The paper was read and pulled apart somewhat, but the borrowed talks—points—helped to hold it together, and it was generally commented upon, through courtesy, at least, as very good.

He naturally swelled with some importance at being something of an authority, as he assumed.

And he never missed telling every patient for the next year how he wrote and read, and what Prof. So and So and others said in commendation of his ability and skill.

The compliments paid him by great men he had down by heart.

(And some of his patients have them by heart.)

Now think of the fine, long-headed business tact.

He is looking now for an appointment on the medical staff of some railroad or extensive machine works, where jaws are broken every day and where a thoroughly competent man is needed.

And he is contemplating putting "My Method of Treating Mandibular Fracture" in brochure form. He only hesitates because he has not, alas! a string of titles to tack on to the end of his name—not even D. D. S.

He ought to come to Chicago and attend a night school in dentistry or medicine, or both.

And, later, by proper tact and assiduity he might become professor in one. Possibly in Chicago there is room for a specialist in his line.

"Me to the front," is his motto—and there are others. See the point? If you haven't the real quality that wins boost among your

fellows, tack on some borrowed plumage and boast. Tactful men work lodges and societies and clubs and churches.

But the way to work churches real tactfully is not to tack on to one and stick, but work a dozen or more.

Not all at once, perhaps, though two or three might be taken along together.

Go to one church in the morning, and another in the evening, and a Sunday school in another between.

Now, in a city like Chicago there are three sides to the city proper, and hundreds of suburbs.

If you don't mind moving once a year go to a new part of the city every spring and, of course, go to church.

Surely that is good advice—go to church. Be good.

Don't be foolish enough to buy a house and lot and settle down. Move. Move early and often. (It is often cheaper to move than pay the rent.)

Be a Baptist, a Methodist, a Presbyterian, a Universalist, a Unitarian, an Episcopalian, or a Catholic. Be a Dow——

No, I wouldn't do that; because there is one only grafter allowed in that.

But you can be a Christian Scientist—on Sundays, for, as one once told me who came in with a howling toothache, "Christian Science hain't got nothin' to do with the teeth," so you can't tack on to it on working days very much.

Absent treatment might be used to bring in some patients who don't come in and contribute often enough; or some who have forgotten about "that bill." Send the bill by mail just the same.

Sometimes our efforts at tact does not work out just as we would like. We run against counter attack, and we are the ones who are subjects.

When tact meets tact then comes the tug of tacticians tactfully tacking.

(Who in dumnation threw that tomato? Quit it! I'm paid for this. Don't blame me. It is a matter of bread and butterine; so quit throwing things.)

Let me see, where was I at? Oh, yes, church tactics, and I was saying our efforts don't always work out right.

For instance, I know a dentist, and you know him—everybody knows him because he is one of the finest—and his wife insisted that it was the correct thing for a highly respectable gentleman, living

in a highly respectable neighborhood, and having a highly respectable lot of patients, to go to church once in a while—or twice in a while.

But he didn't lean that way as he should and he was not a bit tactful in that direction.

However, he went one Sunday to please her, and contrary to his expectations he listened to a wonderfully good sermon from a master of the art, and was so pleased that he determined that if that was the kind of timber they had he could stand it—aye, and be delighted with it every Sunday; and so he resolved then and there to take a pew.

When the services were over he sought the proper official and handing out one of the several fifty-dollar bills with which his pockets were usually lined, and secured good sittings for a year under the divine droppings of a pulpit speaker that he knew he would really enjoy.

Next Sunday found him and wife in their own pew; but the minister was not the same, but an old dry bones that portrayed hell as though he had seen a moving picture of it an hour long. Frank—I mean Jack—said there was enough of that in his week day life, and he didn't want any Sunday. At the close of the service he asked where the regular preacher was. He was told that this man was the regular preacher and the one of the Sunday before was only a visitor.

Fr——, Jack, I mean, wanted to get something for his "five bucks" and so he went to church several times or more during the year, but he sat on tacks through the entire service—so he says, but we're from Missouri.

A good prosperous—tactful, of course, if prosperous—dentist will have his automobile. Running someone down with his devil-wagon gets his name in the papers. Get your name in the papers. If you don't there may be about 2,000,000 people that may never hear of you.

If you can't buy or rent an auto, get an auto cap anyway and wear that. Of course, when anyone asks where your machine is, yours has to be in fashion and it is in the hospital. It may never get out, but the idea is a tactful one, if not strictly business—real business.

It is tactful to show a large roll of bills when you pay anything, especially when you buy. If you have fifty dollars get it all in one's



except a \$10.00 or \$20 wrapper—then flash it, but look out for hold-ups.

Every dentist ought to go out on a vacation for two or three weeks, because everyone asks "Where are you going this summer?" and, of course, you're going, but you don't know where—'round the corner, perhaps, but you are going; because when you get back you want to send greetings to all your patients and some others, and announce your return, rested and recuperated and ready for action.

When asked where you've been, there's where you have to use tact of the finest kind—that is, be evasive, for to name a place may be to put your foot in it. Well, to put your foot in it only you can't tell much about it, and you might hear: "You were? Why, we were there; but didn't see you. Why, how could that be?" Well, yes, how *could* it be? It is up to you. Fall back on your tact. Pull a tooth or do something to change the subject and ever after tack to the truth.



## OVERHEARD IN A DENTAL OFFICE.

(By Herbert H. Kreutzmann.)

Lady patient has just taken seat in dental chair.

Now, Doc, you won't hurt me, will you? It's this tooth right here with the batton in it (pulling back her cheek and covering about three teeth with her finger). It's been bothering me awful, and I just made up my mind I'd have it out. I do hate to see people who haven't got nerve enough to have a tooth pulled but go around with a big, swollen cheek, in pain all the time. Now, I'm always a little nervous when I first get into the chair, but when I once make up my mind, I believe I could have them all pulled without taking a thing. Do you freeze the gums? I heard you did. Yes, you'd better, because maybe it won't hurt quite so much then. Of course I'm not afraid, but, I don't believe in standing any pain if you can get along without it. Oh; my, no. I wouldn't take any brandy. Of course, I know it's medicine in a case like this, but I just know it would make be tipsy.

Dear! that hurts as much as having it pulled, doesn't it? Are you going to pull it now? Yes; I'm ready, I guess. (Settles back in chair, trembles, and shudders.) Oh, let's wait a minute. Will you open that window, please; don't you think it's warm in here?

I know it will, but if the effect wears off we can inject again, can't we? I'm acting like a baby, but I never like to go at a thing until I'm all ready.

Did you make that plate for Mrs. Boideman? My; I think that's just lovely, and I've a notion to have you pull all mine to-day. I would if I was sure you'd make me one like hers. Oh, are you going to inject again? I believe I can stand it without; don't you? I know it will hurt a little more, but I don't care.

Yes; I'll open my mouth wide now, and then you be sure and get it the first time, won't you? (Settles back in chair and open mouth, but just as dentist is about to put in forceps—)

Be careful and don't tear my gum, won't you? Last time I had a tooth pulled the dentist tore my gum awful. Guess he couldn't really help it though, because the tooth was decayed, oh, awful far down.

(Again settles down in chair and opens mouth. Dentist starts with forceps again, but she pulls his hand back, shudders a little and—) Maybe you had better put in another injection, Doctor.

(Dentist goes back to boil the syringe again and she busies herself fingering his instruments.)

Do you think this tooth over here (again pointing to three or four on other side) can be saved? I've only got a few left and so I want to save them if I can. Crown it? Oh my, no; that's too expensive. Of course they look nice, but—yes; you'd better inject now. Oh, my! (Dentist wipes away the medicine and she, even while his fingers are in her mouth—) Tha' mecine taze jus awfa, dozen it?

(Dentist gently pulls her head back and asks her to open her mouth wide. It won't take but a minute.)

I don't see why I should be so fidgety. I never was be-fore, but, some way, this seems so much worse. It is bad, isn't it?

Well (resignedly) all right. (She settles back, opens her mouth, and the dentist is quick to get a good hold. A long-drawn-out groan into owa, wow, and at the same time, throwing one arm up around the dentist's neck, while the finger-nails on the other hand are buried deep into his wrist. Is doing her best to push herself up back over the chair, too. Then, with a final wow when it come out, she leans over to spit, meantime fixing her hair with one hand and jabbing a finger of the other into her mouth to feel the socket. Then she laughs. It takes her twenty minutes to suck out and spit all the blood she wants to, and— My! I'm so thankful that's out, and some day I'm coming down to have them all drawn.

(Steps over in front of mirror, pulls cheek back, and looks into her mouth.)

How much is that, Doctor? My; you earn your money easy, don't you? But, then, it's worth that to me, because it ached so I couldn't sleep one bit during the last two nights.

(Has been fixing her hair and putting on her hat during all this)

Well, good-by, and I'll tell everybody how careful you are. Oh, my! I nearly forgot to take the tooth, didn't I? I want to show it to George. He always shows me his, when he has any pulled, and brags so about it—thank you (as the dentist hands her the tooth wrapped up)—that I'm just going to show him this. It's just as large as any he has shown me.

Well, good-by—no, I won't catch cold in it. I'm always careful about anything like that. Good-by. I will. Thank you. Good-by.

The dentist is 50c richer.

# FOURTH INTERNATIONAL DENTAL CONGRESS

## THE FOURTH INTERNATIONAL DENTAL CONGRESS.

By Edward C. Kirk; D. D. S., Sc. D., Philadelphia, Pa.

(Abstract of a paper read before the Pennsylvania State Dental Society at Wilkesbarre, Pa., July 13, 1904.)

What first appeals to us in the consideration of this congress is the magnitude of its several features and the extent of the interest which the world of dentistry is manifesting in the outcome of the meeting.

There has been called to meet in St. Louis next month a gathering of dentists representing every civilized country on the globe. Each nation having any importance from the standpoint of professional dentistry will be represented by its practitioners and will contribute to the program the latest development of its dental progress, so that as a whole the St. Louis congress will constitute an exhibit of the world's dentistry at this dawn of the twentieth century.

To prepare for this great event has been the work assigned to a special committee appointed by the National Dental Association at its meeting in 1902 at Niagara Falls, and confirmed by the Directory of Congresses of the St. Louis Exposition in 1903.

Notwithstanding the comparatively limited time at command since the inception of the movement, the work of organization has proceeded rapidly and upon systematic lines. Committees of publicity and propaganda have been formed in every important country of Europe, as well as in Australia and Japan, so that twenty or more nations are now concerned in this movement and are actively spreading an interest and securing support in every way for the meeting. Contributions to all departments of the program are rapidly coming in, and to an extent that is causing no small difficulty in regard to their disposal. Each state in our Union is organized by the appointment of state chairmen, who, working with their local com-

mittees, are collectively preparing the part which the United States is to perform in this dental congress of all nations.

While it is not possible to give exact figures, it may be safely stated that not less than fifteen hundred committeemen are actively at work throughout the world in preparing for the events which will together constitute the fourth international dental congress. Upwards of three hundred clinical demonstrations are being provided for. The ten sectional divisions of the congress which will hold simultaneous meetings will produce not less than one hundred to one hundred and fifty essays by the leaders of dental thought in all countries, covering all departments of our profession. Dental education, legislation, history and nomenclature will be the subjects of comprehensive reports made by experts who have for years made these subjects a specialty.

The dealers' and manufacturers' exhibit of dental supplies now includes a larger catalogue of individual exhibits than has heretofore appeared in connection with any dental meeting.

As to the probable number of members who will participate, the indications now point to a larger paid membership than has ever before attended an international dental congress.

The provisions being made by the local committee of arrangements for the care and entertainment of members are upon a scale which assures the success of the social features of the congress—a feature which, after all, is the most important civilizing influence in our dental meetings, and one which in a great international gathering contributes the most toward harmonizing the different national ideals, thus aiding the progress of dentistry as a whole.

To those in position to watch the growth of this world movement of our profession toward a common object the view is an inspiring one. The conception of our calling derived from a local environment at once loses its significance in the broader aspect which the international feature of this congress presents for consideration. In our local, state and national associations we meet with differences of opinion as to theory and practice, and out of the multitude of counsel we extract the grist of that wisdom which becomes in time our accepted standard of practice; yet this diversity of opinion is among men similarly trained, speaking the same mother tongue, having the same patriotic sentiments and similar professional ideals. In an international congress are brought together the products of the most diverse systems of training, with correspond-

ing differences of method and theory and the added diversity of language and national characteristics which act as modifying influences in shaping the professional tendencies of each nation toward its own standards and aims. Yet notwithstanding these characteristic national differences there remains the one professional ideal as the feature common to dentistry in all nations—the salvation of the human denture and the one animating desire to solve the problems of our calling upon an independent professional basis.

The attitude of mind of our professional organization, if I may so express it, has needed the developing influence of experience to so ripen it that a clearer conception of the position of dentistry among the beneficent callings of mankind might be formulated, and during the past twenty years the needed experience has come with its fruit of ripened judgment as a consequence.

In 1889, France issued a call for the first international dental congress. Previous to this the seeds of internationalism in dental associative work were sown by the establishment of a dental section at the International Medical Congress held in London in 1881, and repeated at the International Congress in Philadelphia in 1887. At these meetings the leaders of dentistry of the several nations were brought into contact, and there was born the realization that while all were striving for a common ideal the methods of each were widely different, and that much good would result from a more intimate specialized association that would give opportunity for the comparison and discussion of ideas upon an international and purely dental basis.

The complexity which the international features of the dental professional problem presented were such as could best be worked out upon a basis quite separate from the medical relationship, hence an international congress of dentists dealing exclusively with dentistry was determined upon; and it was France, whose leaders of dental thought were most deeply impressed with this idea, that took the initiative.

The dental congress of 1889, held in Paris, was an abundant success, which revealed the fact that the sentiment was strongly in favor of the independence of dentistry as a profession. This first purely dental congress international in scope accomplished the still more important result of practically demonstrating the good which might flow to all concerned by periodically bringing together in harmonious relationship the dental representatives of all nations for

the discussion of those problems which are vital to the progress and success of dentistry as a profession throughout the world. In 1893 the Second International Dental Congress was held in Chicago, as the World's Columbian Dental Congress, and the third of these reunions was held in Paris in 1900. Each subsequent congress exceeded its predecessor in importance both as to magnitude of membership, output of work, and general character of results. Especially there should be noted in this connection the growth of the spirit of internationalism in dentistry with each succeeding congress. The active and leading men of all nations have on each occasion been brought into close personal contact, and have learned to regard with respect the efforts which all are making to develop those factors which in each country are placing dentistry upon a higher scientific and social plane.

That type of self-sufficiency and conceit begotten of ignorance which offends decency with its blatant claim of superiority over all others has been made unpopular by these great international meetings, and that higher and nobler spirit of according honor and praise to him who is deserving thereof regardless of his nativity or the language in which he expressed his thought is becoming the dominating principle in these associations;—all of which is as it should be.

Dentistry has outgrown its swaddling clothes and is now in the period of a strong and lusty adolescence. It has grown into that independence to which it was from the first destined by virtue of its inherent usefulness to humanity. But it has grown otherwise. In the reaching outward of its spheres of influence it has escaped the geographical bounds which limit the activities of nations, and finding sympathetic response in the touch of the dental professional spirit in other nations has laid the first foundations for the formation of a dental world power which shall know no national limitations, but which shall regard our calling as of that higher order of truth and knowledge that is the exclusive possession of no country, though native it may be to some, yet withal, a citizen of the world.

It will be seen that the international dental congress fulfills a function with which our state and national organizations are not directly concerned nor are they competent to deal.

We discuss questions of education, legislation and reciprocity, but in their international aspects these matters develop a much wider significance. Our national pride and our patriotism are touched un-

pleasantly when, for example, Germany enacts legislation excluding the American graduate from using his doctor title while practicing within her territory; yet in all justice there is something to be said in defence of this attitude upon the part of our trans-Atlantic neighbor, and it is the function and purpose of the international congress to develop the kind of attitude and produce the evidence that in the course of time will set such matters straight.

The international congress movement is a movement toward harmony, by comparison and discussion of those conflicting views which interfere with dental progress and bring about a readjustment of relations upon the basis of greatest advantage to our profession throughout the world.

Much has already been accomplished. The spirit of internationalism in dentistry has taken root and is rapidly spreading its influence among the nations, so that already the fruits of its harmonizing tendency are apparent.

Not the least important step which has been taken toward conserving and developing this international spirit of confraternity among dental practitioners the world over is the creation at the Paris congress of the *Federation Dentaire Internationale*, an organization of all of the delegates representing the several nations at the congress of 1900. The purposes of this federation are to foster the objects for which international congresses are held—to promote and assist all movements which in an international way can contribute to the advancement of the profession of dentistry. The federation is represented by an executive council, which has power to act upon behalf of the federation as an *ad interim* committee, to accept invitations to hold international congresses, and to designate the time and place for holding them. The organization of the international movement is thus planned and assured upon systematic lines, and it is at St. Louis in America that the first period of organized activity of this great power in dentistry will be terminated and the second period inaugurated.

In all probability it will be many years before such a notable meeting will again be accessible to American practitioners in their own country. We are on the eve of perhaps the greatest event in the history of the world's dentistry. Every professional consideration, every purely selfish interest, alike demands that we should take an active part in this congress. Let the man who claims that American dentistry leads the world go to St. Louis and help to



substantiate that claim next month or else hereafter forever hold his peace. America has issued the invitation, you have taken your part in confirming the action of our national association in asking the dental representatives of the nations of the earth to be your guests at St. Louis. The committee has done its work, the feast is prepared, the guests are even now arriving. Let us one and all embrace the opportunity to show them in the best sense our qualities as hosts, and at the same time learn something in a practical way of the good which must accrue to our profession from the development of the international idea, and then give it practical furtherance by our individual efforts.



PROGRAM OF THE FOURTH INTERNATIONAL DENTAL  
CONGRESS.

DEPT A—SCIENCE.

SECTION I.—ANATOMY, PHYSIOLOGY, HISTOLOGY, AND MICROSCOPY. (*Chairman*—Dr. M. H. CRYER, 1420 Chestnut st., Philadelphia, Pa.)

Florestan Aguilar, Madrid, Spain. "General Anesthesia by Somnoform."

G. G. Campion, Manchester, Eng. "Determining the Actual Path and Extent of Movement of the Mandible Condyle in the Living Subject."

D. E. N. Caush, Brighton, Eng. "Is There Uncalcified Tissue in the Enamel?"

M. H. Cryer. (Subject to be announced.)

W. T. Eckley. "Phylogenetic Evidence Regarding the Function of the Accessory Sinuses in Man."

John E. Grevers, Amsterdam, Holland. "Anatomy of the Facial Skull—Normal and in Mouth-breathers."

—— "Geometrical Construction of the Mandible."

—— "Behavior of the Teeth Under Polarized Light."

A. Hopewell-Smith, London, Eng. (Subject to be announced.)

Eugene S. Talbot, Chicago, Ill. (Subject to be announced.)

A. H. Thompson, Topeka, Kans. "Ethnographic Odontography: The Mound-builders and the Pre-Indian Peoples of the Mississippi Valley."

J. G. Turner, London, Eng. (Subject to be announced.)

Arthur S. Underwood, London, Eng. (Subject to be announced.)

O. Walkhoff, Munich, Ger. "Concerning the Crania of Diluvial Peoples." (Illustrated with lantern slides.)

SECTION II.—ETIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

(*Chairman*—Dr. R. H. HOFHEINZ, Chamber of Commerce, Rochester, N. Y.)

C. F. W. Boedecker, Berlin, Ger. "Percussion in Dental Diagnosis."

G. W. Cook, Chicago, Ill. "The Effects of Chemical Agents on Bacteria with Relation to the Saliva."

Samuel A. Hopkins, Boston, Mass. "Application of the Results of Research Work to Daily Practice."

W. H. G. Logan, Chicago, Ill. "A Consideration of Some of the Etiological Factors that Produce Tissue Changes of the Alveolar Process and Overlying Soft Parts."

Jos. P. Michaels, Paris, France. "Sialogy: Differential Analyses; Elements of Value in Medical Diagnosis."

W. D. Miller, Berlin, Ger. "Researches Relating to Various Pathological Processes in the Teeth."

Louis Ottofy, Manila, P. I. "Observations on the Causes of Erosion: (a) Erosio Areca (betel erosion); (b) Erosio Orientalis."

J. D. Patterson, Kansas City, Mo. (Subject to be announced.)

M. L. Rhein, New York, N. Y. (Subject to be announced.)

Oskar Römer, Strasburg, Ger. "Some Pathohistological Observations on Pyorrhea Alveolaris."

D. D. Smith, Philadelphia, Pa. "Pericemental Abscess."

Eugene S. Talbot, Chicago, Ill. "Constitutional Causes of Tooth-Decay."

F. Vicentini, Chieti, Italy. "Leptothrix Racemosa."

### SECTION III.—CHEMISTRY AND METALLURGY. (*Chairman*—Dr.

J. D. HODGEN, 1005 Sutter st., San Francisco, Cal.)

J. P. Buckley, Chicago, Ill. "Chemistry of Pulp-Decomposition."

H. C. Carel, Minneapolis, Minn. (Subject to be announced.)

J. D. Hodgen, San Francisco, Cal. "Chemistry and Dentistry."

Hof-Zahnarzt W. Pfaff, Dresden, Ger. "Das Aluminium und seine Anwendbarkeit in Allgemeinen."

R. W. Simon, Boston, Mass. (Subject to be announced.)

Herbert L. Wheeler. "The Chemistry of Porcelain."

### SECTION IV.—ORAL HYGIENE, PROPHYLAXIS, MATERIA MEDICA AND THERAPEUTICS, AND ELECTRO-THERAPEUTICS.

(*Chairman*—Dr. A. H. PECK, 92 State st., Chicago, Ill.)

Samuel Taylor Bassett, St. Louis, Mo. "Application of Electro-Therapeutics to Dental Surgery."

L. P. Bethel, Columbus, Ohio. "Some Results from Dental and Oral Prophylaxis."

Julio Endelman, Philadelphia, Pa. "Contribution to the Therapeutics of Post-Extraction Accidents."

Richard Grady, Annapolis, Md. "Oral Hygiene: Mastication."

J. E. Hinkins, Chicago, Ill. (Subject to be announced.)

Edward Hoffmeister, Baltimore, Md. "Materia Medica."

Prof. Dr. Jessen, Strasburg; Dr. Loos, Vienna; and Zahnarzt Georg Schlaeger. I. "Zahn-hygiene in Schule und Heer." II. Eine Wandtafel für den Ausschauungsunterricht in der Schule in Farben, "Gesunde und Kranke Zähne." III. Eine Wandtafel, ii. Auflage auch farbig, "Die Zähne und ihre Pflege."

Weston A. Price, Cleveland, Ohio. (Subject to be announced.)

E. Sauvez, Paris, France. "Study of the Various Means of Inducing Local Anesthesia for Extraction of the Teeth."

Zahnarzt Dr. Schaeffer-Stuckert, Frankfort-on-Main, Ger. "Paranephrein Bitsert: a New Preparation of Kidney Atrabiliarian in Connection with Local Anesthetics in Dentistry."

Edward Schlinkmann, Baltimore, Md. "Electric Absorption in Therapy."

C. R. Taylor, Streator, Ill. (Subject to be announced.)

### DEPT B—APPLIED SCIENCE.

### SECTION V.—ORAL SURGERY. (*Chairman*—Dr. G. V. I. BROWN, 445

Milwaukee st., Milwaukee, Wis.)

Chairman's address: G. V. I. Brown, Milwaukee, Wis. "Oral Surgery: Its Relations to General Surgery and Dentistry."

T. W. Brophy, Chicago Ill. "Necessity for Early Operation for Cleft Palate."

T. L. Gilmer, Chicago, Ill. "The Teaching of Oral Surgery in Our Dental Schools."

H. H. Grant, Louisville, Ky. "Solid Tumors Involving the Body or Ramus of the Inferior Maxillary Bone."

J. G. Kiernan, Chicago, Ill. "Embryogenetic, Congenital, and Acquired Stomato-Neurologic Relations."

A. H. Levings, Milwaukee, Wis. "Importance and Methods of Early Diagnosis of Malignant Growths Affecting the Maxillary Bone."

J. S. Marshall, San Francisco, Cal. "Fractures of the Mandible and Their Treatment."

E. S. Talbot, Chicago, Ill. "Etiology of Cleft Palate and Hare-lip."

SECTION VI.—ORTHODONTIA. (*Chairman*—DR. EDWARD H. ANGLE, 1023 N. Grand ave., St. Louis, Mo.)

Edward H. Angle, St. Louis, Mo. "Malocclusion: Class II and Its Divisions."

G. V. I. Brown, Milwaukee, Wis. (Subject to be announced.)

L. C. Bryan, Basle, Switzerland. "Nature as a Regulator, and Our Duty as Her Assistants."

Calvin S. Case, Chicago, Ill. "Principles and Methods of Retention in Orthodontia."

M. Chiwaki, Tokio, Japan. (Subject to be announced.)

Wm. Slocum Davenport, Paris, France. "Contribution to the Treatment of Short Bite and Jump Bite Cases."

Robert Dunn, San Francisco, Cal. "Mesial Position of the First Molars in Class I."

John E. Grevers, Amsterdam, Holland. "Proposal for an International Nomenclature for the Varicous Forms of Malocclusion."

Chas. A. Hawley, Columbus, Ohio. "Method of Determining the Normal Arch, and Its Application in Orthodontia."

Francisque Martin, Lyons, France. "The Correction of Deformities in Fractures of the Nose."

R. Ottolengui, New York, N. Y. "Spreading the Maxillæ *versus* Spreading the Arch."

W. Booth Pearsall, Dublin, Ireland. "Irish Types of Malocclusion."

Herbert A. Pullen, Buffalo, N. Y. (Subject to be announced.)

Jose J. Rojo, Mexico City, Mex. "Study of the Etiology of Anomalies in Human Teeth."

Dr. Schroeder, Greifswald, Ger. "Prognathous Forms and Their Orthopedic Treatment."

A. Hopewell-Smith, London, Eng. (Subject to be announced.)

J. Simi Wallace, London, Eng. "Nasal Obstructions and Mouth-breathing, with Special Reference to Malocclusion of the Teeth."

S. Merrill Weeks, Philadelphia, Pa. (Subject to be announced.)

Edmund Wuerpel, St. Louis. "Art."

Franz Zeliska, Vienna, Austria. (Subject to be announced.)

SECTION VII.—OPERATIVE DENTISTRY. (*Chairman*—DR. C. N.

JOHNSON, Marshall Field Bldg., Chicago, Ill.)

E. A. Bogue, New York, N. Y. (Subject to be announced.)

Jas. M. Magee, St. Johns, N. B. "The Instrumentation and Filling of Crooked Root-Cana's." (Illustrated.)

Sylvester Moyer, Galt, Ont. "The Enamel and Its Consideration in Cavity Preparation."

C. G. Myers, Cleveland, Ohio. (Subject to be announced.)

Garrett Newkirk, Los Angeles, Cal. "The Whole Question of Matrices and Their Uses."

Frank L. Platt, San Francisco, Cal. (Subject to be announced.)

Geo. C. Poundstone, Chicago, Ill. "The Cement Problem in Inlay Work."

M. L. Rhein, New York, N. Y. (Subject to be announced.)

Arthur Scheuer, Teplitz, Austria. "Tin-Cement, Sponge Tin: Two New Filling Materials and Their Uses."

E. K. Wedelstaedt, St. Paul, Minn. "Gold-and-Tin."

H. L. Wheeler, New York, N. Y. (Subject to be announced.)

SECTION VIII.—PROSTHESIS. (*Chairman*—DR. C. R. TURNER, 33d and Locust sts., Philadelphia, Pa.

L. W. Baker, Boston, Mass. (Subject to be announced.)

George Brunton, Leeds, Eng. (Subject to be announced.)

Reuben C. Brophy, Chicago, Ill. "Rationale of the Use of Materials for Base-plates in the Construction of Artificial Dentures."

Calvin S. Case, Chicago, Ill. "The Mechanical Treatment of Cleft Palate."

Edw. G. Christensen, Drommen, Norway. "Which is the Ideal Crown—the Banded Crown or the Crown Without Band?"

B. J. Cigrand, Chicago, Ill. "Facial Guide Lines as Taught by Artists."

Bernard Frank, Amsterdam, Holland. "A New Articulator on Anatomical Principles."

Hart J. Goslee, Chicago, Ill. "Porcelain Crowns."

F. H. Mamlock, Berlin, Ger. "(a) Ueber Porzellanstiftzähne. (b) Ueber Magnalium Prothesen und ihre Herstellung nach Dr. Eug. Müller-schen Gummidrucksystem."

Francisque Martin, Lyons, France. "Immediate Prosthesis After the Method of Dr. Claude Martin."

Joseph Nolin, Montreal, Can. "The Decline of Estheticism in Prosthesis."

B. Platschick, Paris, France. "(a) Influence de Fauchard sur la Pro-thèse dentaire. (b) Les dents à tube en général et leur emploi special pour les pièces à genive continue. (c) Contribution à l'étude des Couronnes."

Jas. H. Prothero, Chicago, Ill. (Subject to be announced.)

Rudolph Weiser, Vienna, Austria. "Some Cases Illustrating the Possibilities of Prosthetic Dentistry."

E. Lloyd Williams, London, Eng. (Subject to be announced.)

Geo. H. Wilson, Cleveland, Ohio. (Subject to be announced.)

**SECTION IX.—EDUCATION, NOMENCLATURE, LITERATURE, AND HISTORY.** (*Chairman*—DR. TRUMAN W. BROPHY, Marshall Field Bldg., Chicago, Ill.)

- M. Chiwaki, Tokio, Japan. "Dentistry in Japan."  
 Ch. Godon, Paris, France. "Educational Standards of Europe."  
 S. H. Guilford, Philadelphia, Pa. "Nomenclature."  
 A. W. Harlan, New York, N. Y. "Dental Literature."  
 A. O. Hunt, Omaha, Neb. "The Count System of Students' Credits."  
 Chas. McManus, Hartford, Conn. "International Character of the Early Development of Dentistry in America."  
 Louis Ottofy, Manila, P. I. (Subject to be announced.)  
 Jose J. Rojo, City of Mexico, Mex. "Historical Annotations and Present Condition of Dental Education in the City of Mexico."  
 B. L. Thorpe, St. Louis, Mo. "History of American Dentistry."  
 James Truman, Philadelphia, Pa. "A Practical View of Education."

**SECTION X.—LEGISLATION.** (*Chairman*—DR. WM. CARR, 35 West 46th st., New York, N. Y.)

(Not received.)

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**CLINICS.**

(Reports for the EAST and SOUTH have not yet been received.)

**PORCELAIN.**

- C. C. Allen, Kansas City, Mo.  
 W. V-B. Ames, Chicago, Ill.  
 E. H. Ball, Tama, Iowa.  
 F. E. Cheeseman, Chicago, Ill.  
 W. A. Coston, Ft. Scott, Kans.  
 W. H. Cudworth, Milwaukee, Wis.  
 A. W. Dana, Burlington, Iowa.  
 S. F. Duncan, Joliet, Ill.  
 Adam Flickinger, St. Louis, Mo.  
 V. H. Frederick, St. Louis, Mo.  
 H. J. Goslee, Chicago, Ill.  
 F. B. James, Wilton Junction, Iowa.  
 Robt. LeCron, St. Louis, Mo.  
 L. A. Meyer, Oconomowoc, Wis.  
 J. E. Nyman, Chicago, Ill.  
 W. T. Reeves, Chicago, Ill.  
 W. H. Taggart, Chicago, Ill.  
 C. N. Thompson, Chicago, Ill.  
 J. E. Wait, Superior, Neb.  
 C. M. Work, Ottumwa, Iowa.

**GOLD INLAYS.**

- F. T. Breene, Iowa City, Iowa.  
 O. H. Simpson, Dodge City, Kans.  
 C. N. Thompson, Chicago, Ill.  
 W. F. Whalen, Peoria, Ill.

**SURGERY.**

- T. W. Brophy, Chicago, Ill.  
 T. L. Gilmer, Chicago, Ill.  
 G. D. Moyer, Montevideo, Minn.

**GOLD FILLINGS.**

- A. G. Fee, Superior, Wis.  
 F. O. Hetrick, Ottawa, Can.  
 C. H. Wright, Chicago, Ill.  
 J. G. Pfaff, St. Louis, Mo.  
 C. H. Seeger, Manitowoc, Wis.  
 F. G. Van Stratum, Hurley, Wis.  
 J. W. Wick, St. Louis, Mo.

*(G. V. Black Club.)*

S. Bond, Anoka, Minn.  
 K. E. Carlson, St. Paul, Minn.  
 W. R. Clack, Clear Lake, Iowa.  
 J. V. Conzett, Dubuque, Iowa.  
 Wm. Finn, Cedar Rapids, Iowa.  
 S. R. Holden, Duluth, Minn.  
 A. M. Lewis, Austin, Minn.  
 J. B. Pherrin, Central City, Iowa.  
 G. A. Rawlings, Bismarck, N. D.  
 A. J. Schlueter, Aberdeen, S. D.  
 A. C. Searl, Owatonna, Minn.  
 J. F. Wallace, Canton, Mo.

E. K. Wedelstaedt, St. Paul, Minn.  
 R. B. Wilson, St. Paul, Minn.

## GOLD CROWNS.

J. G. Hollingsworth, Kansas City, Mo.  
 C. M. Work, Ottumwa, Iowa.

## PYORRHEA ALVEOLARIS.

W. H. G. Logan, Chicago, Ill.  
 O. H. Manhard, St. Louis, Mo.  
 G. R. Richter, Milwaukee, Wis.  
 C. R. Taylor, Streator, Ill.

## EXTRACTING.

J. W. Slonaker, Chicago, Ill.

## (SUBJECTS NOT GIVEN.)

C. S. Case, Chicago, Ill.  
 W. D. James, Tracy, Minn.

F. E. Roach, Chicago, Ill.  
 Jas. Weirick, St. Paul, Minn.

The following manufacturers and dealers have reserved space up to date:

The S. S. White Dental Manufacturing Co.	S. Eldred Gilbert Dental Manufacturing Co.
Claudius Ash & Sons, Ltd.	Ritter Dental Manufacturing Co.
H. D. Justi & Son.	Young Dental Manufacturing Co.
Kress & Owen Co. "Glyco-Thymoline."	McKesson & Robbins Chemical Co.
J. W. Ivory. (Specialties.)	Dentists' Supply Co.
Oakland Chemical Co.	Pinches & Ely. (Specialties.)
American Cabinet Co.	Frink & Young.
Ransom & Randolph Co.	W. V-B. Ames.
Ammonol Co.	A. C. Clark & Co.
Jno. T. Nolde Dental Manufacturing Co.	Horlick's Food Co.
Hisey Manufacturing Co.	Chas. H. Phillips Chemical Co.
E. De Trey & Sons.	Whiteside Dental Manufacturing Co.
Johnson & Johnson.	Klewe & Son. (Jenkins porcelain.)
Detroit Dental Manufacturing Co.	R. C. Brophy.
Harvard Co.	L. O. Green.
Lee S. Smith & Son.	L. D. Caulk.
Sanitol Chemical Laboratory Co.	Dutro & Hewitt.
Jno. T. Milliken Co.	Blair Dental Manufacturing Co.
	Peroxident Chemical Co.
	Goldsmith Bros.
	Adrian Rutherford.

*Note.*—The United States Government will make an exhibit consisting of a complete dental outfit as furnished to the members of the Army Dental Corps.

## MISCELLANEOUS.

H. F. Cassel, St. Louis, Mo. (Striking up partial gold plate with swaged enforcement single thickness gold.)

W. L. Ellerbeck, Salt Lake City, Utah. (Electric furnace construction.)

Otto J. Fruth, St. Louis, Mo. (Replantation with porcelain restoration.)

R. R. Johnson, Gt. Falls, Neb. (Artificial velum and obturator.)

Elgin MaWhinney, Chicago, Ill. (New drugs; valuable old ones; with therapeutics and indications for uses.)

T. W. Pritchett, Whitehall, Ill. (Bonwill method of articulating full dentures.)

J. B. Ridout, St. Paul, Minn. (New method of backing facings for Richmond crowns; new method of making continuous gum plate; method of putting gold corner or filling in porcelain tooth.)

H. A. Shannon, Lincoln, Neb. (Esthetic crowns and dummies.)

C. O. Simpson, St. Louis, Mo. (Demonstrating strength and durability of amalgams and cements.)

G. O. Sitherwood, Bloomington, Ill. (Soldering bands and fixtures; gold plating and adjusting.)

W. R. Smith, Pawnee City, Neb. (Prosthetic.)

Richard Summa, St. Louis, Mo. (Practical application of Angle fracture band.)

S. H. Voyles, St. Louis, Mo. (Saddle bridge; pinless teeth.)

E. R. Warner, Denver, Colo. (Masticating force of human jaws, demonstrated by appliances.)

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**P. D. I.**

The International Dental Federation will carry out the following programme in the Coliseum, St. Louis:

On Friday, August 26th, at 11 a. m., Dr. Charles Godon, presiding.

Address of welcome by Dr. William Conrad, of St. Louis.

Response by Dr. Godon.

Address by a representative of the Louisiana Purchase Exposition.

Address by Dr. C. C. Chittenden, President of N. D. A.

Address by the Mayor of St. Louis.

Response by Dr. H. A. Smith, of Cincinnati, O.

Short addresses by the representatives of the foreign countries present; after which the President's address, Dr. Charles Godon.

Report by the Secretary-General, Dr. E. Sauvez.

Adjournment, subject to the call of the President.



## COMMISSION ON EDUCATION.

Prof. Truman W. Brophy, of Chicago, presiding.

Will meet in the Coliseum Building, St. Louis, Mo., August 26, at 2 p. m.

Address by the President, Dr. Brophy.

Address by Dr. E. Forberg, President.

Dr. Charles Godon will give a resumé of the status of Dental Education in France.

Dr. Mitchell, of London, will make some observations on technical education.

Dr. Gordon White, of Nashville, Tennessee, will make a short address on the present status of Dental Education in the United States.

Dr. R. B. Weiser, of Vienna, Austria, will give an address on education.

## COMMISSION ON HYGIENE AND PUBLIC DENTAL SERVICE.

Prof. W. D. Miller, of Berlin, presiding.

The meeting will convene Friday, Aug. 26, at 2 p. m.

Address by Prof. Miller, on Dental Hygiene, in Germany.

Dr. George Cunningham, of Cambridge, England, will present a report on Public Dental Service, by the late Dr. J. Franck, of Vienna, Austria, with comments. Other papers will be presented by members of the commission.

Dr. E. Forberg, of Stockholm, will give a paper on Hygiene and Public Service.

## COMMISSION ON INTERNATIONAL DENTAL PRESS.

Dr. E. Forberg, of Stockholm, Sweden, presiding.

The meeting will convene Friday, Aug. 26, at 4:30 p. m., in the French Building at the Fair Grounds.

Paper by Dr. A. W. Harlan, New York: "The Advantages of an International Review."

The programme for Saturday will be published and distributed early Saturday morning.

Dr. Conrad has secured the use of the French Building for the members of the F. D. I., from 4:30 to 6:00 p. m., Friday, Aug. 26.

The Executive Council will meet at 6:30 p. m. in the Hotel Jefferson.

Members of the dental profession affiliated with the dental so-

cieties in the United States, or in foreign countries, are cordially invited to join any or all the sections of the International Dental Federation.

On behalf of the Federation.

A. W. HARLAN,  
Vice-President,

No. 1122 Broadway, New York, N. Y.

July 19, 1904.

Doctors H. L. Banzhaf, of Milwaukee, A. H. Thompson, of Topeka, C. N. Johnson, of Chicago, M. W. Foster, of Baltimore, and W. E. Boardman, of Boston, will read papers before the Commission on Education.

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#### NATIONAL DENTAL ASSOCIATION.

At some opportune time, during the progress of the Congress, the N. D. A. will meet for the election of officers and the transaction of whatever business may properly come before the Association. Very likely some changes to the constitution and by-laws will be considered.

Time and place of meeting will be announced at a general session of the Congress.

A. H. PECK,  
Rec. Sec'y.



# ABSTRACTS

## NECROSIS.

(D. Ambrose Stein, D. D. S., Phila, Pa.)

A girl not quite seven years of age had been troubled occasionally, as all children will be, with roots and temporary teeth in bad condition. The inferior teeth on the left side were in this bad condition through neglect. The child struck the side of her face against a plank and evidently bruised the jaw bone, which immediately developed symptoms of necrosis. Extreme swelling occurred, supuration of the gums, high temperature and sloughing to such an extent that the finger could be inserted between the gums and teeth at every place both on the right side and on the left. While it would have been necessary to remove some of the teeth, they all became loose to such an extent that the patient removed every tooth on the left side from the median line back, including the six year molar, with the finger quite easily. Twice a day quantities of pus were removed for three or four weeks, in which time, through the immediate treatment of peroxide of hydrogen and the after use by the patient of a 50 per cent solution of Glyco-Thymoline, frequently during the day, the gum on the right side was brought into a completely normal condition. Having almost entirely overcome the formation and discharge of pus, for the last month the treatment has been confined to the use of Glyco-Thymoline with an occasional variance to phenol sodique, not as a substitute, but to note the effect. At this period the process and jaw bone were necrosed from the median line almost all the way back to the ramus, yet the surrounding tissues seemed to be and were entirely healthy.

The patient at this time was taken before Doctor Cryer at the University of Pennsylvania and it was decided to allow the necrosed parts to remain to act as a splint for the jaw in the formation of new jaw bone. The mouth washes prescribed were continued and the jaw bone is improving nicely, as shown by the X-ray examination, and the necrosed parts are gradually loosening at the posterior

and anterior edges. There is nothing to be done except to allow nature to do its work and assist it with cleanliness and Glyco-Thymoline.

The suppressing of the trouble and the recuperation of the parts were due almost exclusively to faithful use of Glyco-Thermoline, which seemed to both heal and fortify.

The interesting phase of this case to appear will be to what extent the newly formed jaw will be supplied with teeth, for as the child is but seven years of age, or not quite seven, nature may be generous to her with a number of teeth, or may slight her altogether, which only time will tell.

### **SOME VIEWS ON FRACTURES OF THE LOWER JAW.**

(By Henry C. Boenning, M. D., Philadelphia, Pa.)

#### **TREATMENT OF MANDIBULAR FRACTURE.**

The treatment of fractures of the lower jaw is widely discussed in the text-books, and the result of such treatment is generally said to be entirely satisfactory.

From the number of cases of Mal-occlusion and mandibular deformity following fractures that have been brought to my notice, and from personal experience, I hold that treatment of fracture of the lower jaw is difficult, requiring much care and skill, and even this is often followed by troublesome sequelæ. Perverted alignment, ununited fracture, osteomyelitis from septic infection, deformity, caries, necrosis, disease, and loss of teeth, are more often seen than perfect results. Nor are my deductions local or limited. From careful inquiry I find that unsatisfactory reports on the treatment of fracture of the lower jaw are abundant throughout the surgical world. Five years ago I addressed a letter to about a hundred representative surgeons in this country and abroad asking their personal experience in the treatment of the fracture under discussion. I received a number of answers, and with one exception all stated that perfect results were difficult to obtain. At first sight this seems to be without warrant. But when we consider that fractures often occur in jaws more or less distorted or changed by the loss of teeth, it is more easily understood. Now and then we are called upon to treat a case in a subject who is edentulous.

The means used in treatment are various. Splints are used both within the mouth and applied externally. Operations for wiring, fixation or fragments by metal screws or by a pin of some animal material properly asepticized, are growing in favor. The mouth-

splints in use, such as the Hammond, vulcanite interdental prop, the Angle apparatus, and others, are familiar and useful appliances in many cases, but not infrequently fail to keep the fragments in position. Of the splints named, I prefer the Hammond wire splint, carefully adjusted. The danger in all splints attached to the teeth, or exerting pressure thereon, is that they bring about a certain amount of leverage by approximating the alveolar end of the fracture and thus separating or displacing the line of fracture through the body of the bone. This permits the intrusion of shreds and other soft tissue, and non-union is often the consequence. Another objection to splints within the mouth is that they interfere somewhat with mouth sanitation.

#### SURGICAL TREATMENT OF MANDIBULAR FRACTURE.

In fractures of the body of the mandible it has been my aim and practice to discard all splints. I cut down upon the fracture, remove the shreds of tissue and clot, if any, and drill through each fragment; then silver wire of No. 18 or 20 gauge is threaded through the drill-holes. The fragments are then accurately approximated, the wire twisted together tightly, and the resulting wire knot is bedded firmly against the bone. The wound is then closed, strict antisepsis being carried out. The advantages of this line of treatment are obvious. Mouth sanitation can be enforced; there is perfect apposition of the ends of the fragments, and hence much lessened tendency to complications and subsequent deformities. Where the fracture is comminuted, small loose fragments had better be removed, but larger fragments, although loose, should be left in situ and wired. The osteogenetic function of the periosteum provides, as a rule, ossific deposits sufficient in such cases to bring about a good result, and where the wiring has been accurately done and the fragments are immobile, a good result should follow.

#### CARE IN POST-OPERATIVE BUCCAL ANTISEPSIS.

Of equal importance with accurate coaptation of the fragments and immobility is mouth-sanitation. No matter how perfectly the bone has been set, should infection occur serious results will follow, for infection is the foe of good union. The most painstaking care should be exercised in keeping the buccal cavity surgically clean. The dental practitioner by means of rubber dam isolates teeth requiring his services, and can thus asepticize his field of operation. The oral surgeon cannot secure asepsis of the mouth. Though he may filter the air entering the air-passages, he cannot close the buccal

cavity behind; hence the mouth is constantly contaminated from pharyngeal, alimentary, and nasal communications. But he may wonderfully improve the degree of buccal cleanliness by correcting stomach irregularities by means of laxatives and proper feeding; also by flushing the nose with saline and mildly antiseptic solutions. The nasal meatuses are a veritable hotbed of germ life, and it is imperative that they should be kept clean. The use of antiseptic gargles and mouth-washes will be of great service. Brushing the teeth when fracture of the jaw exists had better be omitted. The nurse may substitute interdental injections of hydrogen dioxid, followed by stronger antiseptics. The wound communicating with the fracture should be thoroughly cleansed as often as necessary, and if possible dressed with sterile borated gauze.

I have often tried to seal up the buccal wounds in fracture with iodoform-collodion, but frankly confess that I was unsuccessful. One of my assistants advised a wire shield that could be bent down upon the dressings, and kept in position by ligating to the adjoining teeth. This cap was quite efficient in keeping the dressing in place, but it became speedily offensive and caused so much annoyance to the patient that it was removed, to prevent the tongue from pushing it out of place, with the possible danger of disturbing the fragments.

### **SPAULDING'S PORCELAIN JACKET CROWN.\***

(By Henry W. Gillett, D. N. D., New York.)

Following the suggestion of Dr. C. H. Land for a porcelain jacket crown, Dr. Edward B. Spalding of Detroit has worked out a different technique for a crown, which is so artistic in final result, and so fascinating in the precision of the different steps of its development, that it arouses immediate interest wherever shown.

Most of you are probably familiar with the article of Dr. Land in the *Dental Cosmos* for August, 1903, on "Porcelain Dental Art," in which he figures a porcelain crown similar to the one I will show you to-night.

Dr. Spalding wishes to give credit to Dr. Land for the original suggestion of such a crown. The development of the technique of the crown I am to show you is entirely Dr. Spalding's work, and seems to me a distinct advance over Dr. Land's.

In order to describe intelligibly of Dr. Spalding's procedure, we will assume that we are dealing with a deformed superior cuspid tooth, with either living or dead pulp, but with such defects of development as to call for treatment of some kind. The first step is to

\*Read before the New York Institute of Stomatology, January 5, 1904.

take a wire measurement of the circumference of the tooth at the gum margin. The second is to give the crown of the tooth a conical shape from the gum margin to the occlusal end, to give it a distinct shoulder at or just under the gum margin, and to shorten it. This Dr. Spalding accomplishes with rather thin three-quarter-inch disks of carborundum for the broad surfaces, and finishes with small inverted cone carborundum points, mounted for both hand-pieces, at the angles resulting from the use of the larger disk.

The third step is to cut a piece of matrix platinum in the shape of a trapezoid, with its base line the same length as the wire measurement in the first step.

Fourth, unite the edges of this piece with a minimum quantity of pure gold, forming a truncated cone-shape. Slip this over the tooth, making sure that its edge goes above the shoulder left at the gum margin, and with the dentimeter twist a soft wire ligature around the matrix just below the shoulder, and with suitable pliers begin to draw the surplus platinum to the mesial and distal sides in two flattened wings, and also over the end of the tooth. Clip off most of the surplus at the end, leaving a little for a handle till the fitting is nearly done, and fold over the surplus at the sides, cutting off part of it first if there is much excess. Burnish the matrix accurately and smoothly to the tooth. Dr. Spalding uses for this work a bone instrument, of which I have made a rough imitation for your inspection. It is a valuable instrument, and my use of it convinces me that a bone or ivory burnisher will be very helpful in inlay matrix formation. The feel of the bone instrument as it passes over the platinum is a distinct relief as compared with the drag of a steel instrument.

Fifth, select a rubber tooth of suitable color and shape, and with carborundum stones cut it to the shape of the sample facing shown. Note that the tip is hollowed out and the shoulder and enamel surface of the palatal side of the tip is left intact. This is accomplished by using the same small carborundum stone used for finishing the shaping of the teeth. This shoulder is a very important aid in the further work.

Sixth, wax this to the matrix, with latter in correct position on the tooth, using gutta-percha and wax mixture; remove carefully; grip with suitable pliers, one jaw of which passes inside the matrix and the other engages a corresponding point on the labial surface of the facing. Remove the wax and place "block body" on one

side near the tip and jar it carefully through till it appears on the other side, then build it round the top of the cone and, setting on end in the furnace, fuse the body. It is essential that the body for this first bake be kept away from the shoulder in the matrix. This block body Dr. Spalding makes by grinding up in the mortar pinless teeth of the same make as the facing he uses.

Seventh, place the piece in position on the tooth and carefully perfect the fit of the matrix at the shoulder.

Eighth, apply body, carve, and fuse to finish.

Ninth, remove the matrix and set in suitable cement.

Dr. Spalding is able to report use of these crowns only since last April,—about nine months. This is, of course, too short a period to enable us to define their permanent place in our resources for such work, but his report for that time is favorable without exception. He has had no breakages yet. He has the matter so thoroughly worked out, and is so conservative in his own estimate of it, that the fact that he continues to think well of the method is sufficient evidence that it has value.

For molars, Dr. Spalding builds up the entire crown with block body.

A possible objection to these crowns over live pulps is the difficulty of getting access to the pulp in case pulpitis develops after the application of the crown.—*International*.

## THE THERAPEUTIC USE OF THE X-RAY IN THE ORAL CAVITY.

(By George F. Eames, Boston, Mass.)

The remarkably good results which have been recently achieved by means of the X-ray as a therapeutic agent are astonishing. The X-ray itself was accidentally discovered, as was also its chemical and therapeutic effect; its good results, therefore, are all the more surprising. The history of the discovery of the Röntgen ray, its wonderful penetrating power, and its use in photographing tissues and substances hidden from the ordinary sight are too well known to need further comment, but some attention to the nature of this wonderful electrical force, the means by which it is produced, and the methods of its application for the purpose of obtaining a therapeutic result have a claim to recognition in connection with the subject under consideration.

The X-ray is known chiefly by the phenomenon which accom-

Read before the American Medical Association, Section on Stomatology, New Orleans, May 5 to 8, 1903.



panies it, as no one has yet been able to define it. Many scientists have, however, advanced theories with the object of explaining its nature and character. Many agree that it is a form of transverse ethereal vibration, and formed in a series with sunlight and what is known as the Becquerel rays; the ethereal vibration being less in the case of ordinary light, more irregular in the Becquerel rays, and still more irregular in the X-rays.

Dr. H. P. Pratt, who has given this subject much attention, considers the X-ray as an electric current of a very high potential, which makes its circuit from the inner surface of the tube outward, perpendicularly to the surface, then radiates in straight lines until the potential falls, when the rays return to complete the circuit by the terminals. During the passage of the rays through the walls of the tube, through the atmosphere and into the body, it is accompanied by a liberation of oxygen from the body, as well as from the surrounding atmosphere. One of the most important agents in the application of the X-rays is the Crookes tube; indeed, the greater part of the technique and much of the therapeutic effect depends upon the proper handling of the tubes. The tubes themselves are usually designated as hard and soft, or, what is the same thing, high and low vacuum tubes. The condition which determines whether a tube is hard or soft is the number of molecules of residual gas in the tube; this fixes the degree of the vacuum and, consequently, the condition of the tube as to whether it is hard or soft. An X-ray tube when acted upon by the electric current has been compared to a Leyden jar: it discharges in one direction, the outer surface of the tube becomes electro-positive, and the inner surface electro-negative. The usual method of producing the Röntgen ray by means of a Crookes tube consists in furnishing electricity to it by means of a static machine,\* or by the street current through a Rhumkorff coil, the terminals of which are connected with a Crookes tube.

The cathodal and anodal poles are connected, the molecules of residual gas within the tube furnishing the medium through which the current is established. When the current is thus passing, these molecules of gas within the tube are driven with great force against its inner surface, and the point of contact locates the origin of the Röntgen ray.

\*Dr. William B. Snow advises the static machine for exciting the electric current. This should have ten revolving plates thirty to thirty-four inches in diameter. While coils are often capable of exciting tubes, it is perilous to both coil and tubes.

The following ideas regarding the production of the X-ray, by Dr. H. P. Pratt, are quite pertinent to our subject. "Every molecule of gas striking the inner surface of the tube causes one or more lines of magnetic force to be thrown out at right angles to the surface of the tube. The distance to which these lines of force are projected, or, in other words, the limit of the penetrating power of the ray, depends entirely upon the potential of the tube, and this in turn depends on the force of the impact of the individual molecules of residual gas. The higher the vacuum, the less the number of molecules of residual gas in the tube; the greater the free path, the higher the potential, the greater the penetrating power. All substances through which the X-rays pass form part of the X-ray circuit. The X-ray circuit is the same as any other electrical current. It has its return forming an endless chain of molecules, arranged in series. . . . The light which is emitted from the tubes is the result of decomposition of the molecules in the atmosphere around and inside the tube. This light is not the X-ray current; the X-ray force is purely electrical and invisible.

"The softer the tube, the greater are the number of lines of force thrown out and the stronger the current which increases decomposition, but the penetrating power is decreased. We are dependent entirely upon the number of lines of force projected from the tube to bring about ionization of the tissues. Ionization means changes in the elementary structures and increase in metabolism.

"We need to have the greatest possible number of these lines of force within a given space for our best therapeutic work. This is only possible with a low or soft tube."

Having considered the nature and character of this electrical force, it becomes especially interesting to investigate the action which it has upon the various tissues of the body. Dr. Pratt suggests that "the magnetic force from the X-ray passes directly into the affected tissues. Electrolysis results, the chemical decomposition liberates oxygen, which unites with the free oxygen of the body and makes ozone. Ozone will kill every bacterium the human body possesses. The X-ray does not destroy germ life by direct action any more than does the sun's rays; the bactericidal effect of both are due to ionization, or electrolysis. Factors to be considered in X-raying are, 1, potential of the ray; 2, the resistance of the tissues to the ray; 3, the resulting intensity of the radiation. The first only is under control and is governed entirely upon conditions in the tube,

which are constantly varying, but which, by corresponding changes in the current energizing the tube, the spark-gap, etc., may be made approximately constant." Experience in X-ray work has shown that for a therapeutic effect, a low, or soft tube should be used, and the current increased according to the result which it is desired to obtain. The harder the tube the less the number of lines of force thrown out, and consequently the weaker the X-ray current, and the less the decomposition, but the greater the penetrating power. While it is true that the X-ray improperly or incautiously applied will certainly burn the tissues, and that the burns are very painful and serious, it is, nevertheless, of rare occurrence with the careful and experienced operator, who, being mindful of the great difference in susceptibility of patients, adapts the current, the tube, the time of exposure, and the distance of the tube from the body to the conditions he finds in his patient. He will take other precautions, such as the interposition of a celluloid screen between the patient and the tube; this prevents the germs in the air between the patient and the tube from being driven into the body. From the foregoing we may summarize the following marked characteristics of the X-ray when applied to the human body.

1. The power of penetrating deeply into the tissues.
2. Its great germicidal power.
3. The power of destroying diseased tissues with the result of new tissue being formed.

These wonderful properties of the Röntgen ray, and many others of which we know, and probably others of which we do not know, have, in actual practice, worked marvelous results, as we have ourselves seen, and as the published records have shown during the past year. It is reported that at least one hundred different diseases have yielded to the X-ray, the most notable, perhaps, being those coming under the head of malignant growths. These often occur in the mouth, and should interest the dentist. The effect of the X-ray on malignant growths is summarized by Dr. Morton as follows:

1. Relief from excruciating pain.
2. Reduction in size of new growths.
3. The establishment of the process of repair.
4. Removal of odor if present.
5. Cessation of discharge.
6. Softening and disintegration of lymphatic nodes.

7. Disappearance of lymphatic enlargements not submitted to treatment and often quite distant.

8. Removal of the cachetic color.

9. Improvement in the general health.

10. Cure, up to date, of a certain number of malignant growths.

The changes above enumerated are further described by Dr. M. F. Wheatland, who suggests that the X-ray vibrations acting on the cancer cells tend to stimulate many to maturity, at the same time breaking down the weaker ones, which are absorbed by the lymphatics and enter the circulation, producing the autointoxication so frequently observed, the number of cells reaching maturity and those undergoing destruction depending upon the intensity of the reaction established. At the same time changes take place in the small blood-vessels, their coats become thickened, narrowing their caliber, thereby reducing their blood-supply and aiding the return of the circulation to the normal.

Regarding the application of the X-ray to the mouth, the possibilities of its therapeutic effect may have a wider range. Already it has shown a marked influence over neuralgia and in the control of hemorrhage.

In the various forms of benign and malignant growths, provided they can be reached by the X-ray, we may expect the same good results that have been attained in other parts of the body. It is reported, and it has been my experience also, that the beneficent results of the X-ray are not confined alone to the part to which application is made, but that remote parts of the body also come within the range of its influence; indeed, it is often remarked by the patients that their general condition is improved, and that they have a feeling of well-being after an application of the X-ray. The report that there is an increased discharge of uric acid during this treatment seems, from the examinations which I have made, to be true. It is my belief that the application of the Röntgen ray may be effectual in the treatment of that stubborn and obscure condition generally termed pyorrhœa alveolaris, but of this I am not yet ready to report.

I am indebted to Dr. George R. Southwick of Boston for the privilege of reporting the following case:

F. H. B., aged forty-five, was troubled, about six months ago, with pain in the left side of the upper jaw, which was located in some of the teeth of that side. Some attention was given the teeth,

and as the pain was not then constant or severe, further attention was then delayed. The pain in the jaw continuing, the patient sought advice from his physician, who suggested that he was troubled with "canker," and provided him with an antiseptic wash; but the use of this failed to relieve his condition, and recently, on account of the severity of the pain and looseness of the teeth on the affected side, he sought the advice of a surgeon, who, when he saw the case, suspected malignant trouble, and extracted the teeth on that side. He then sent the patient to Dr. Southwick, who kindly asked me to see the case and make suggestions as to an appliance for the mouth, through which the X-ray might be applied, a positive diagnosis of epithelioma having previously been made.

Finally, after several modifications, a shield was constructed which properly protected the healthy tissues and allowed the ray to reach the diseased part.

This consisted of sheet lead fourteen inches square, in the center of which was fitted and soldered a mouthpiece which projected into the mouth as far back as the tuberosity of the jaw, closed at the end, but on the side towards the affected part a piece was cut out in order to allow the ray to pass through the opening thus made, and into the diseased tissues. The condition of the part at the beginning of treatment showed some loss of tissue, white patches and inflammatory conditions, and a spreading to the cheek and to the center of the palatine vault. The treatment consisted in using a direct current of one hundred and ten volts from the street, reduced to one and a half amperes, approximately, before going to a twenty-inch coil, of a Ruhmkorff pattern. From the terminals of this coil a soft Crookes tube of twenty centimeters was used, about twelve inches from the face, for about nine minutes, the face and other parts being protected by the shield.

The patient was treated in this way twice a week, and after two visits a marked improvement was shown. A further application of the X-ray was applied to the outside of the face with the object of reaching the facial nerve and controlling the neuralgia. This was effective in lessening the pain, and the good results in this direction have been progressive. The patient has, at this writing, received eight treatments, and the improvement in the mouth continues. All traces of the disease, however, have not yet been removed, and a prognosis must be withheld until a later date.—*International*.

## AN ACADEMIC EDUCATION PRELIMINARY TO MEDICAL STUDY.

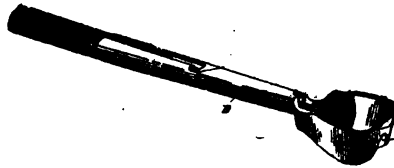
Musser urges very forcibly and makes a strong plea for its advantages. There should be one educational requirement—the equivalent of that for which a first-class college degree stands, whether received at a high school or university. To the plea that the requirement of a college degree takes up too much time and requires too much money, the material answer can be given that while only .01 per cent of the entire population of America has received a higher education in her colleges and universities, this .01 per cent holds more than 40 per cent of all positions of confidence, of trust, and of profit. It is well known that the "Gist" of the individual brings success, for which they say "it is recognized that the educated man takes in a wide horizon and puts more 'soul' into his work." The poor boy, therefore, need not be deterred, for if he has the spirit and energy to work his way through four years, two years or three years more will be but very little in the final summing up. The purchase of the best education, whether reckoned in time or money, is the most economic investment. We have recently discussed this question in these columns, and hardly need say that this is an ideal which we have frequently and strongly advocated.—*American Medical Association, June 18, 1904.*



# DENTAL PATENTS

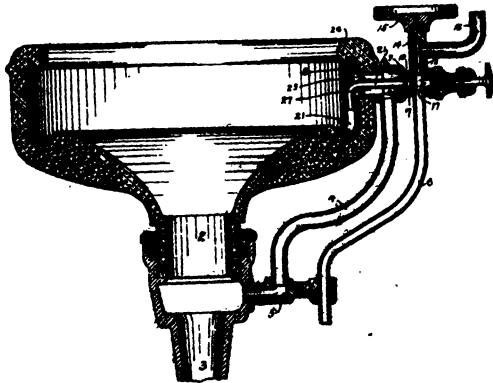
763,918. Guard for Dental Tools. Roy L. Magoon, Graceville, Minn. Filed Nov. 2, 1903. Serial No. 179,516. (No model.)

*Claim.—I.* An attachment to the handpiece of dental engines comprising a shield having a shank portion through which the stem of a tool is adapted to pass, said shield being flaring and having an elongated slot opposite its flaring opening, and adapted to surround the tool held therein, as set forth.



764,022. Dental Cuspidor. Henry E. Weber, Canton, Ohio. Filed March 11, 1904. Serial No. 197,616. (No model.)

*Claim.—*A cuspidor-bowl having an aperture in its side, a valve-case having a tubular extension and an axial port opening therein, a sleeve having a rim-flange and adapted to be entered through the aperture and screwed into the tubular extension, an inlet-tube adapted to be entered in the axial port, a rotatable apertured ring on the tube adapted to be screwed into the sleeve, there being opposed annular shoulders on the tube adapted to bear against the valve-case and the ring-screw, and a pipe leading from the tubular extension.

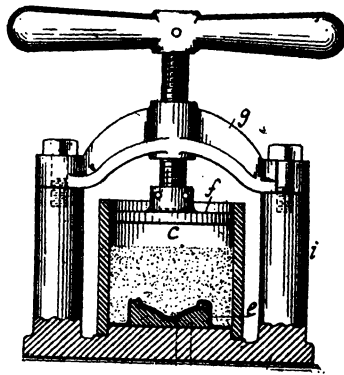






763,385. Swaging or Fitting Dental Plates. Alvin L. Fisher, New York, N. Y. Filed Aug. 11, 1903. Serial No. 169,148. (No model.)

*Claim.*—A dental swaging apparatus, comprising a base provided on its upper side with an integral boss and on the opposite sides of said boss with vertical standards, an open-ended imperforate cylinder fitted at its lower end closely about said boss, a yoke pivotally mounted at one end of said standards and provided at its other end with a hook, a set-screw tapped in the upper end of the other standard and arranged to engage the hooked end of said yoke, a screw carried by said yoke, and a plunger swiveled upon the lower end of said screw and arranged to reciprocate in said cylinder, substantially as and for the purpose specified.



## REPORTS OF MEETINGS

### SOCIETY ANNOUNCEMENTS

#### DENTAL DEPARTMENT, M'GILL UNIVERSITY.

Appointments in the new dental department of the Faculty of Medicine at McGill University, recommended by the faculty, were July 13 confirmed at a meeting of the board of governors.

They are as follows:

Professor of operative dentistry and operative technique—Peter Brown, L. D. S.

Professor of dental pathology, dental materia medica and therapeutics—Fred. G. Henry, L. D. S., D. D. S.

Professor of prosthetic dentistry, metallurgy, and crown and bridge work—D. James Berwick, L. D. S., D. D. S.

Lecturer on dental anatomy, human and comparative, and dental surgery—E. R. Barton, L. D. S., D. D. S.

Lecturer on orthodontia—James B. Morrison, L. D. S., D. D. S.

Demonstrator on operative technique—A. D. Angus, L. D. S., D. D. S.

Demonstrator on prosthetic dentistry and crown and bridge work—W. D. Smith, L. D. S., D. D. S.

The first two years of the course in dentistry will be identical with that in medicine, and the dental students will take the same classes and conform to the same regulations as medical students; after which the dental professors proper will continue their education to the end of a four years' course. The matriculation examination will be practically the same as for the College of Physicians and Surgeons of the Province of Quebec.

#### MAINE DENTAL SOCIETY.

The Maine Dental Society met July 21 and the following officers were elected for the coming year: President, R. W. Bickford, Rockland; vice-president, F. H. Moore, Calais; secretary, H. A. Kelley, Portland; treasurer, E. J. Roberts, Augusta; librarian, Elbridge Bacon, Bar Mills. The new executive committee will be as follows:

George E. Dow, Portland; L. W. Hart, Camden; W. R. Bibber, Eastport; W. S. Fogg; Cornish; Will S. Payson, Castine.

#### **SOUTH CAROLINA STATE DENTAL ASSOCIATION.**

The following officers were elected at the annual meeting held at White Stone Springs, July 22.: J. M. Quattlebaum, Columbia, president; George Hair, Bamberg, vice-president; J. H. E. Milhous, Blackville, second vice-president; J. B. Bigham, Chester, corresponding secretary; R. Atmar Smith, Charleston, recording secretary; W. B. Alford, Sumter, treasurer.

E. C. Jones of Newberry was re-elected members of the state board for five years. The next meeting of the convention will be held at White Stone.

#### **NATIONAL ASSOCIATION OF COLORED DENTISTS.**

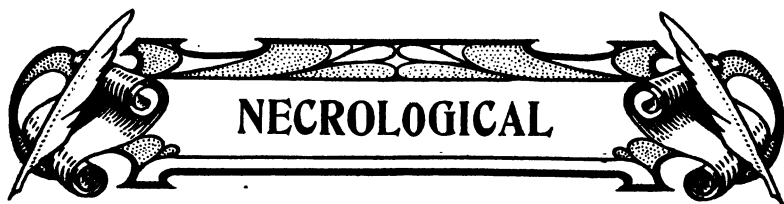
Thirty colored dentists from the different states held a meeting July 5 at Washington, D. C. It was the four annual convention of the National Association of Colored Dentists. At the morning session a paper was read by Charles H. Roberts, of New York, on "The Relation of Dentistry to Medicine." At noon a meeting of the executive committee was held, W. S. Lofton, chairman, presiding, when officers were nominated and routine business transacted.

An evening session was held. A. J. Gwathney of Washington, president of the association, delivered an address. Papers were read by D. A. Ferguson on "The Care of Children's Teeth" and by C. S. Wormley on "Porcelain Inlay Work."

#### **NEW JERSEY STATE DENTAL SOCIETY.**

The New Jersey State Dental Society elected the following officers, July 22, at Asbury Park: President, W. G. Chase, New Brunswick; vice-president, J. G. Duffield, Camden; secretary, Chase A. Meeker, Newark; treasurer, H. A. Hall, New Brunswick. Executive Committee—M. R. Brinkman, Hackensack; N. M. Chitterling, Bloomfield; T. Starr Dunning, Paterson; W. Woolsey, Elizabeth. Membership—J. W. Jaquette, Salem; J. G. Halsey, Swedeboro; Wm. H. Bruden, Paterson; C. H. Dilks, Trenton; F. W. Stevens, Newark.

Dr. Meeker, of Newark, was re-elected secretary of the State Board of Examination and Registration in Dentistry.

**DR. WM. M'PHEE.**

Dr. Wm. McPhee, of Ottawa, Can., in attempting to get out of a descending elevator, in the Bank Street Chambers, July 21, received injuries which terminated fatally, within an hour. The deceased was descending when the elevator halted at the first floor to admit a passenger. The boy in charge of the elevator started to descend to the ground floor, and at the same instant attempted to close the door of the shaft. Dr. McPhee, thinking that he was being carried below his landing place, flung the boy aside and attempted to make his exit, but in doing so he lost his footing. Dr. McPhee sustained a fracture of the knee, and had several ribs broken, which it is believed pierced the liver, causing hemorrhage, which resulted in death an hour later. The deceased was a well-known citizen, fifty-six years of age.

**DR. S. W. MOULTON.**

Dr. S. W. Moulton, mayor of Lyons, Ohio, died suddenly of heart disease, July 13. He had been suffering from heart trouble for some time, but his death was a surprise. Dr. Moulton was 62 years old. He had lived in Lyons about thirty years, and was very prominent in politics, being a stanch Republican. Dr. Moulton was a dentist and practiced that profession up to five years ago. For fifteen years he was justice of the peace, and was serving his second term as mayor of Lyons. He served in the civil war four years, and was a member of Baxter Post, G. A. R. He was one of the oldest and most prominent members of the Masons and the Odd Fellows, having joined those orders over twenty-five years ago. Dr. Moulton recently erected a new residence. He leaves a widow, who is an invalid, and one son, Berton Moulton.

**DR. CHARLES A. BILLS.**

The death of Dr. Charles A. Bills of Natick, Mass., occurred at the home of his father, Eben Bills, at Kenduskeag, July 19. Dr.

Bills had been suffering from heart trouble for some time, and came to his old home for rest, but grew rapidly worse after his arrival, and passed away after a few days of great suffering.

Dr. Bills has been an esteemed citizen of Natick for some years, where he had a large dental practice. He was a prominent Mason, and had held the position of High Priest in Parker Royal Arch Chapter and Worthy Patron in the Eastern Star. His many friends at Kenduskeag showed the esteem in which they held the deceased, by the sympathy and kindly services extended to the bereaved family.

**DR. D. E. WHITBY.**

Dr. D. E. Whitby, a dentist of Montgomery, Ala., died rather suddenly July 25 at Atlanta, Ga. He arrived in Atlanta at 7:35 o'clock Monday night for the purpose of being treated, and was driven to his destination in a carriage. He became suddenly ill and expired at 10 o'clock. Dr. Whitby had been in poor health for some time and his death was not altogether unexpected. He leaves a wife and several children in Montgomery. His father arrived in Atlanta Tuesday at noon and accompanied the remains back to Alabama.

**DR. HARRY RUE.**

Dr. Harry Rue of Alton, Ill., died Aug. 1, at St. Joseph's Hospital, after a lingering illness, caused by a tumor at the base of the brain. Dr. Rue was graduated last spring from the Dental Department of Washington University in St. Louis, and became ill on the day of his graduation. Dr. Rue was born twenty-two years ago in Godfrey, Ill., and was the son of Mr. and Mrs. F. J. Rue of Alton.

**DR. JOHN H. SHAW.**

Dr. John H. Shaw, of Pueblo, Colo., died at his home, July 8, at the age of 37 years.

The deceased was a graduate of a Philadelphia dental college of the class of 1887. After graduating he began practice in Pittsburg, where he lived for a number of years, until his health compelled him to leave that city.

**DR. ROBERT H. MORGAN.**

Dr. Robert W. Morgan, a former member of the first board of dental examiners for the United States Army, and who suggested the matter of supplying dentists in the army to the late Congressman Otey, died July 15, at his home, near Lynchburg, Va., aged 60 years. He is survived by his wife, four sons and two daughters.

**DR. JACOB S. SIMMERMAN.**

Dr. Jacob S. Simmerman, of Millville, N. J., well known and most highly respected citizen, died July 25, at the age of 72. He was at one time one of the leading dentists of South Jersey. He was formerly a member of Millville City Council and a member in good standing of the lodge of Masons.

**DR. ALBERT WESTON.**

Dr. Albert Weston, a dentist at Kansas City, Mo., died suddenly at his home, July 22. He was sitting in a chair, when suddenly he fell over, and died. Death was due to heart failure. He was 32 years old and leaves a wife and one child.

**DR. ROY LUTTRELL.**

Dr. Roy Luttrell, a Toronto dental student, was drowned July 8 in the lake nearly opposite the Long Branch Rifle Ranges, while returning with Normal Smith of Toronto Junction from a canoeing visit to Port Credit.

**RALPH E. WIRT.**

Ralph E. Wirt, secretary of the Diamond Match Company, who was struck by a sky-rocket at the summer home of D. G. Reid on the Hudson, died July 1. Deceased was a son of Dr. J. D. Wirt of Chicago.

**DR. A. C. COGSWELL.**

Dr. A. C. Cogswell, of Halifax, one of the oldest dentists in Nova Scotia, died suddenly of heart trouble on July 9 at Wolfville, where he was spending a week's vacation.



# MISCELLANEOUS

## Massaging in Pyorrhea.

Massaging of the gums often increases the capillary circulation, the lack of which is one of the principal causes of this disease. We often meet the disease advanced to the stage when the teeth have become loosened. I have found ligation in the not too far advanced stage satisfactory in lessening the danger of increasing the surrounding inflammation, but when the gums have loosened to such an extent as to entirely fail to support the teeth I use a number of bands; either of gold or of other suitable metal, made to tightly fit the necks of the teeth well up toward the biting edge. After placing these bands in position I take an impression, removing the bands in same, soldering bands together in relative positions and then replacing, with the use of cement if found necessary; then proceed with treatment.—*Dr. F. R. Mayer, Internat. Dental Journal.*

## NOTES.

Debility, nervousness, mental aberrations with depressions, are relieved by cocaine in sufficient doses.—*Alk. Clinic.*

Remember that Guaiacol, applied externally, will reduce the temperature even more quickly than if given internally. Do not apply too much at a time—you may come dangerously near collapse.—*Critic & Guide.*

The successor of Information is the most unblushing publisher of original articles from other journals without giving credit. The Madison (Wis.) outfit has evidently never heard of journalistic courtesy.—*Western Journal.*

When adaptable a seamless crown is to be preferred to a soldered crown, from the fact that in some mouths the solder dissolves out, leaving a hole.—*Dental Hints.*

## To Color Porcelain Bodies and Cement.

A very minute quantity of oxyphosphate of copper powder may be mixed with the body to obtain the deeper shades. It is equally efficient when added to the zinc phosphate cements and is needed to deepen the shade in many cases when setting inlays. Many otherwise perfect inlays are made conspicuous by cement too light in shade.—*Dr. J. W. Beach, Forum.*

In drilling into an abscessed tooth it should be steadied by pressing it to one side against the wall of the socket, very gently at first and finally very firmly. If pressure is applied slowly, but with increasing force, very little pain is felt.—*Dental Hints.*

#### **Margins.**

Doctor Rhein trims the cavo-surface angle with a gem stone and then finishes it with sandpaper disks, a method I have observed many men use. Tight margins cannot under any circumstances be made against a smooth margin if gold is the filling material used. Gold slides over a polished surface, for there is nothing against which it can be restrained in its course. But roughen that margin by planing it with a sharp chisel, and gold will hug that roughened surface, if properly placed, so that water-tight margins can be made.—*Dr. E. K. Wedelstaett, International.*

#### **Congested Gums.**

In the treatment of congested gums, whether involved in pyorrhea alveolaris or not, iodid of zinc in crystal form has often been recommended and applied with much success. It is one of the most effective agents to restore the gums to their normal form, but it occasionally seems to induce sensitiveness of the teeth, and the taste is objectionable to some patients. To overcome these limitations the crystals may be mixed with one of the essential oils to the consistency of a syrup. Applied in this form it is fully as effective and much more acceptable.—*Review.*

#### **Medicine Does Not Cure.**

Not only do drugs used in pyorrhea pockets fail to cure the disease if the deposit is not removed, but they are unnecessary if it is removed. And not only are they unnecessary in that case, but they are a hindrance and delude, leading the operator, by the suspension of suppuration, to believe that the disease is cured, and leading him also into vague (though pleasurable) theories as to the constitutional origin of the disease and treatment in accordance therewith.—*Dr. H. N. Lancaster, Items.*

#### **Suggestions for Using Diamond Drills.**

A man who makes diamond drills says that when drilling a cavity with a diamond drill oil should be used as a lubricant, thus preventing the drill from becoming heated, which would cause it to tear out; also, when drilling a cavity two drills should be used of different sizes, the larger one to widen the cavity and the other for



retaining points. When properly used these two drills should last until the steel which holds the diamonds is actually worn away.—*Off. Lab.*

#### **Treatment for Lockjaw.**

Bacelli's treatment of lockjaw by injection of carbolic acid has been attended with great success in Italy and elsewhere. The method consists in the injection of a two to three per cent solution of carbolic acid. About thirty to forty centigrams of carbolic acid should be injected daily. Injections of hydrogen dioxid have been tried successfully on horses, as have intravenous injections of an iodid solution.—*Medical Record.*

#### **Professional Ideas.**

Much stress is laid in Dr. Patterson's paper upon the fact that professional ideas are not sufficiently taught in colleges; that the teachers are lacking in the proper spirit of directing the students toward professional honor and ethics. I am of the opinion that you may teach ethics in dental colleges to a large number of students until doomsday without accomplishing the desired result.—*Dr. N. M. Butler, Western Jour.*

#### **Swage for Adapting Caps to End of Root.**

Cut a disk from a rubber band (such as is used for holding books) about the size of the end of the root. Bur a hole through the disk to fit over the post, and with a bur in the engine bore a hole in the end of a piece of wood which is about the size of the end of the root. Place this over the post and use as a swage.—*Dr. J. Mills, Review.*

#### **To Make Worn Carborundum Wheels True.**

Small carborundum wheels used with the dental engine very often wear "flat." They can be easily and quickly made round again by placing the mandrel, to which one is attached, in the hand-piece of the engine and holding it steadily, while the engine is running, against a large carborundum wheel mounted on the lathe and revolving rapidly in the opposite direction.—*Review.*

#### **Moldine, to Soften When Hardened.**

Break into small pieces, place in an old glass, pour in considerable water, with half a teaspoonful of glycerine, and let stand in a warm place. The water dissolves the lumps and evaporates, leaving the glycerine thoroughly permeating the moldine. A little kneading or

further evaporation finishes the task and makes the material as good as new.—*Dr. P. W. Smith, Era.*

### **Gutta Percha.**

Gutta-percha undoubtedly has great tooth-saving properties—properties not equaled, I think, by any other material. Its chief disadvantage is that it has not the hardness necessary to resist abrasion, but on protected surfaces, leaving out all esthetic considerations, it certainly has better tooth-saving qualities than any other substance.—*Dr. W. F. Litch, Dental Brief.*

### **Patents.**

Two patents may be for the same invention, although the earlier is for a specific machine, while the latter contains broader claims, which embrace both the prior specific machine and others as well. A patentee cannot patent a structure, and by disclaimer withdraw the invention which makes the structure patentable.—*Scientific American.*

### **Tooth Separation.**

To avoid the slow process of wedging, lift the teeth apart judiciously with the separator and then prop them apart with gutta-percha, extending it firmly against the approximating tooth. Repeat once in three or four days until sufficient space is obtained; no soreness is created.—*Dr. G. V. Black, Northwestern Dental Jour.*

### **Root Canal Filling.**

Zinc oxychlorid is the only material which will take care of the always possible and often probable gases in the pulp-canal; the only really antiseptic material we have; a material used as easily as any; which fills the canal as perfectly as any, and fills it more permanently than any other.—*Dr. C. W. Stainton, Dentol Cosmos.*

### **Rubber Dam.**

Many patients object to the use of the dry napkin and prefer rubber dam. When the latter cannot be easily clamped to a tooth and the napkin is indicated, a small square of rubber dam should be used under it next to the tongue. Squares 2x2 inches may be kept on hand for this purpose.

### **To Refit and Lower Set of Teeth.**

Cover inside of plate with thin wax. Have patient bite down hard while warm. Apply crushed ice in the napkin to cool. Trim off surplus wax and invest in mold. Separate and drill a row of

holes around edges of plate. Pack and vulcanize.—*Dr. J. F. Steele, Eagle Grove, Iowa.*

#### **Saliva of Pregnant Women.**

It is a well-known fact that the saliva of a pregnant woman is acid, as a result of which we often get chemical erosions of the necks of the teeth, which become very sensitive to the touch, their structure breaking down and producing very painful cavities.—*Register.*

#### **Gauze Drains Contra-Indicated in Pus Cavities.**

Never forget the fact that gauze will drain serum or very fluid discharges, but not pus. Hence the filling up of an abscess cavity with gauze is the surest possible way of blocking-in the secretion and favoring sepsis.—*Internat. Journ. of Surgery.*

#### **Vaseline for Lubricating.**

Use vaseline on your handpiece. It will not "run" like oil and soil and bur on your fingers. Also use vaseline on the rubber dam and it can be more easily adjusted.—*Dr. A. W. Thornton, Dental Review.*

#### **Dignity.**

In any profession its dignity and high regard in the eye of the public must ever be dependent upon the individual personal influence of each of its members.—*Western Journal.*

#### **Receding Gums.**

Apply glycerite of tannin to spongy gums as a tonic astringent lotion. It establishes the nutritive function.—*Register.*

#### **Hydrophobia.**

The most likely medical treatment to benefit is a full hypo of pilocarpine; gr. 1-6 to 1-4, at once.—*Alk. Clinic.*



## PERSONAL AND GENERAL

**Burglaries.**—F. E. Light, Waltham, Mass., July 30; loss \$40.—Drs. Stryher & Son, Galena, Ill., Aug. 1; \$20.—Drs. Forman, Chambers, Hall and Gibson, all of Waco, Texas; entire loss about \$300.—Dr. Watts and Dr. Myers, Springfield, Ill.; \$50 and \$75.—A. W. Alexander, at Carlinville, Ill., was robbed of a considerable sum and E. J. Miller, of St. Louis, was arrested for the theft, and also for robbing the offices in Springfield. Gold in his possession was identified by Dr. Alexander.—Dr. McClelland, of Middletown, Ohio, July 6; loss \$50.—Walter Cunningham, F. A. Krahbol and C. W. Porter, all of Bay City, were robbed of amounts from \$8 to \$50 July 5.—Dental offices at Flint, Mich., were robbed July 4; total loss \$300.—J. C. Took, a dentist in Utica, N. Y., robbed July 17; loss \$9. Dr. Retter, same; loss \$50.—Dr. Fritsche, Sleepy Eye, Minn.; loss \$30.—Bernard Kissell, Joplin, Mo.; loss \$16.—Otto Rutherberg, Chicago, lost several hundred dollars through burglars.—Dental offices of Sandusky, Ohio, were robbed July 15; combined loss \$100.—F. P. Conkrite, July 14; loss \$100.—T. M. Cockrill, R. E. Nelson, Dr. Remy, Dr. Snyder, all of Leavenworth, Kansas, lost amounts from \$6 to \$40 through burglars July 13.—Dr. Stanley Evans, Delaware, Georgia; loss \$75, July 13.—Dr. Ed. Wanous, at Minneapolis, Minn., July 11; loss nominal.

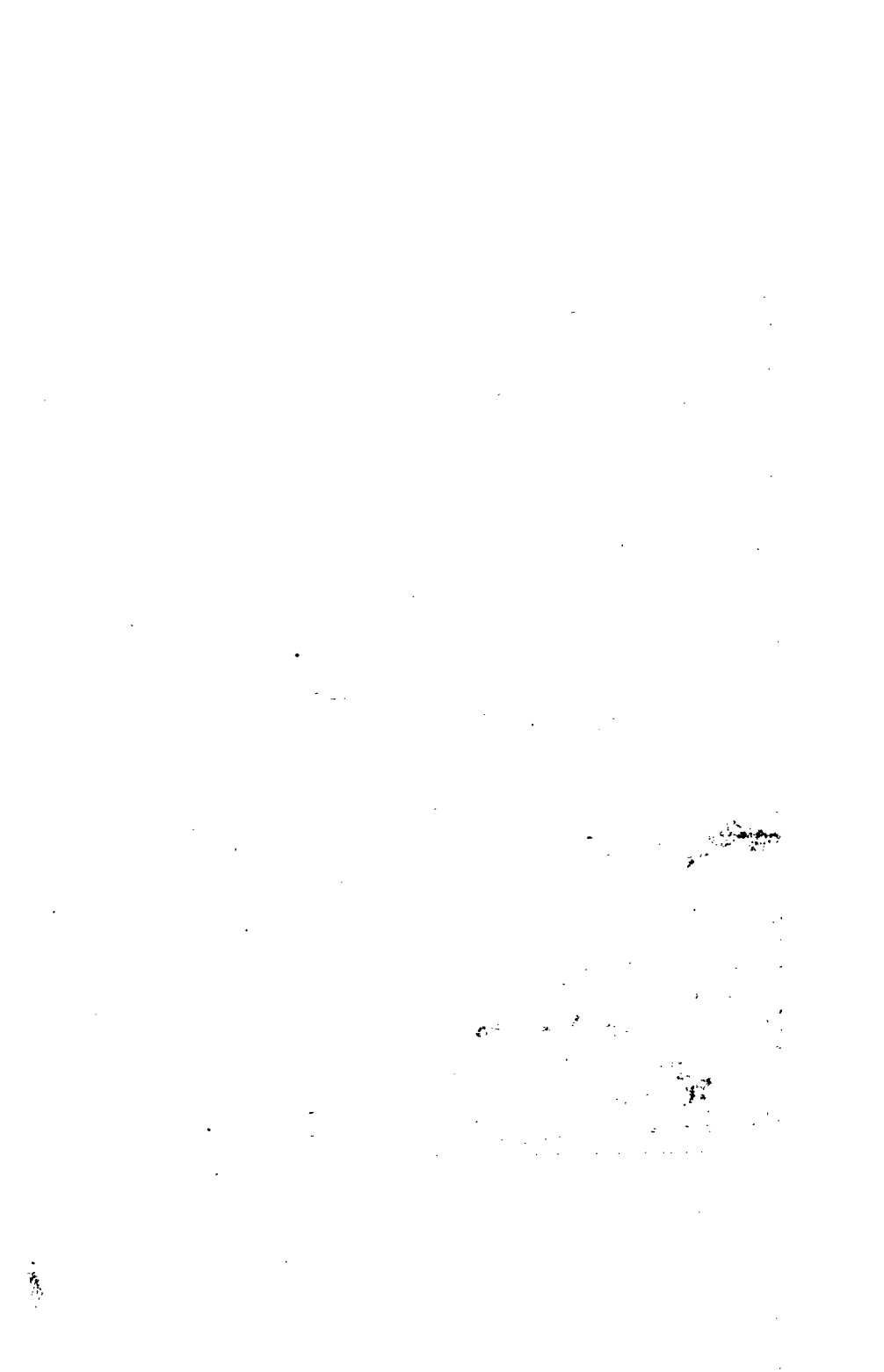
### A CASE OF BLEEDING.

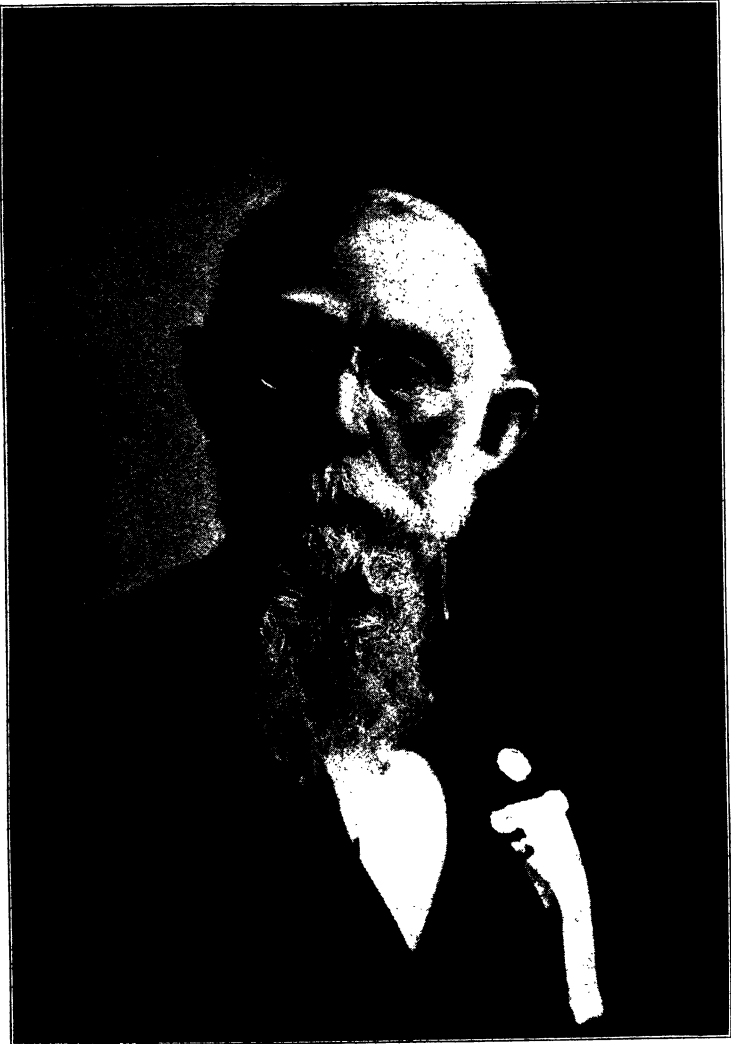
But for the timely assistance of physicians Earl Hoagland, of Cedar Falls, Iowa, would have bled to death. For several days he has been suffering from an alveolar abscess, which broke and bled a continuous stream for five hours. Although he is very weak prospects are good for his recovery.

**Dr. Kulp Injured.**—While preparing for a cruise upon his gasoline launch Dr. J. H. Kulp, of Davenport, Iowa, brought his arm into contact with a portion of the machinery and the bone was broken.

**Important Decision.**—The Supreme Court at San Francisco has decided that the dental laws are constitutional. Henceforth the Board of Dental Examiners will have all the power it has claimed in the issuance of licenses to practice. The arguments of the unlicensed dentists that the laws were discriminatory are shown to be inapplicable. The contest was instituted by those who could not get licenses from the State Board. The matter was carried to the Supreme Court on a petition for a writ of habeas corpus in favor of C. H. Whitley, who was arrested for practicing dentistry without a license.

The court holds that while the law gives the Board of Dental Examiners great power, the Legislature has the right to impose such restrictions as it may choose when the public welfare and health is involved. Dentists who were practicing prior to the passage of the act and those who are graduated from schools of recognized standing may secure licenses under the law at the will of the Board.





DR. CORYDON PALMER.

See page 643.



## **PROSTHETIC DENTISTRY.**

**By B. J. Cigrand, B. S., M. S., D. D. S.**

**(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois)**

### **CHAPTER XVIII.**

The compound cavity involving several surfaces often presents features which at first thought would contra indicate a gold inlay. The cavity is deep and has deep undecuts, and if these overhanging walls are trimmed down to a point admitting of a perfect fit the tooth would require considerable cutting down. In such cases splendid results can be obtained if you carefully remove all the decayed tooth structure and eliminate such of the soft dentine as your judgment directs, then fill the base and undercuts with cement or amalgam, and after a lapse of ten hours you may proceed to place your gold inlay, cutting the cavity into the cement or amalgam allowing the margins of the cavity to guide you in the outline of the cavity. We have such a case in Figures 1 and 2, No. 3 showing gold inlay in position. There can be no objection to first filling the cavity entire, and later shaping the inlay cavity in the filling previously inserted, as in Figure 18.

Of late the matrix has become a valuable appliance in operative dentistry, and its use in prosthetic work is just beginning to dawn. Some fifteen years ago the use of a matrix in the operation of inserting a gold filling was pronounced an adjunct to the novice, that its use was indicative of inability, while to-day its employment is a mark of wisdom. The matrix can be employed in gold inlay work, where you desire protection and support or guidance, as in Figures 4 and 5. The matrix here shown is the one advocated by Prof. Crenshaw, and is the most serviceable matrix, possessing an adjustable ribbon best I have yet seen. Its use and great adaptability is readily understood and its meritorious features can scarcely be overestimated. The cases illustrate its advantages, and any appliance which aids in diminishing pain to the patient and labor to the oper-

ator without impairing the durability and aesthetic results of the operation should commend itself to the practitioner. This matrix is one of such inventions.

The Dr. Woodward matrix, shown in Figure 6, also applies most handily in some cases of inlays. It is quickly adjusted and admits of pressure against the marginal walls of the cavity and considerably simplifies the production of the inlay. With the use of a matrix inlays involving two surfaces, as in Figures 7 and 8, can be easily made and by methods previously described under simple cases. There are cases where it is quite excusable to place a gold inlay in even a small and conspicuous position as in Figure 9. The dentine and often the enamel at this portion of a tooth is frequently so tender that burring or scraping becomes an impossibility. Hence the operation which requires the least possible trimming will be the one most happily indicated. The gold inlay naturally will be the method of substitution. Whenever it is possible to give the cavity a marginal outline of a curvelike character, as in Figure 9, the filling will be least attractive. Figure 10 illustrates a common decay, and the very best cavity outline and preparation is found in Figure 11, as diagramed by Dr. G. W. Schwartz. He has fully appreciated all the requirements and his method of getting the impression by use of pure gutta-percha, and making die and counter die of hard metal is deserving of comment. Figure 12 shows how his gold matrix is swaged and how liberally he allows the gold to overlap the margins. Dr. Schwartz's idea of reproducing the labial contour is splendid.

In connection with the molding or swaging the gold matrix it may be of interest to note what Dr. Williams of England recently wrote regarding his method of inlay production: "It will greatly facilitate the shaping of the gold form if a notch be cut out of the gold and at the same time decrease the chances of breaking through the gold in forcing it into the shape of the cavity. It should first be introduced into the cavity without annealing. The cut edges will then slide over each other as the center of the gold is forced to the bottom of the cavity. Another excellent plan to be followed without cutting the gold is to place the sheet, after cutting to proper size, on a large, fine-grained cork, and then with the largest burnisher press the center of the gold sheet into the cork. It will be found that the approximate shape of the cavity can in this way be made in a few moments without bursting through the thin gold at any point. The gold form may now be introduced into the cavity and the



fitting completed, and this can easily be done in a great majority of cases without anywhere cutting or bursting through the gold. The fine fitting is best accomplished by packing very solidly with a hard-rolled ball of cotton-wool or spunk. The gold form should be taken out at least once during this stage and carefully annealed, and again



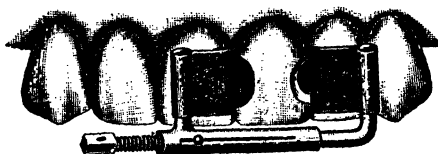
*Fig 1.*



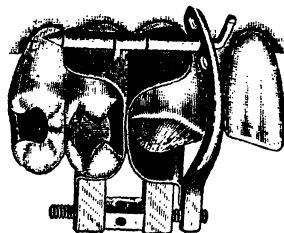
*Fig 2.*



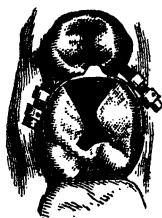
*Fig 3.*



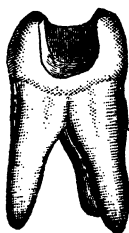
*Fig 4.*



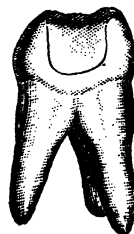
*Fig 5.*



*Fig 6.*



*Fig 7.*



*Fig 8.*

packed with wool or spunk. Then, with the cotton or spunk tightly packed in the cavity, carefully burnish the gold around the entire edge of the cavity."

Dr. Williams adds this good advice regarding the delivery of the gold matrix:

"Most operators who have tried inlay work have found the removal and imbedding of the gold form to require the most delicate manipulation, and by the methods heretofore described one is never quite certain whether or not this part of the operation has been successfully performed until the inlay has been completed and tried in



Fig 9



Fig 10

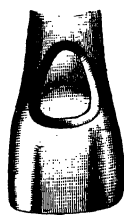


Fig 11,



Fig 12a



Fig 13,



Fig 14

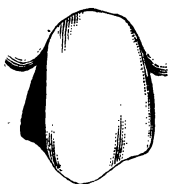


Fig 15

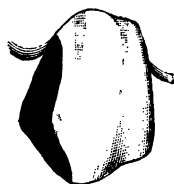


Fig 16

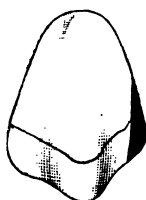


Fig 17



Fig 18.

place. All of this uncertainty can be entirely done away with by the following procedure: Slightly warm and roll up in the fingers a small ball or pledget of hard, white wax containing resin. The ball of wax should be just a little larger than is necessary to completely fill the cavity; that is to say, it should *slightly* project over the mar-

gin of the cavity all round. The wax should be quite stiff when introduced into the gold form as it lies in the cavity of the tooth."

Some time ago Dr. Schwartz gave a splendid description of his method, reproducing the tip of a tooth where restoration was needed as in Figure 13. The entire method is admirable, but he seems to forget the prominence given to the artifice by allowing a straight line to demarkate at the center of the labial surface. If this line of apposition had been slightly wave-like or curved possibly less pronouncedly than in Figure 18 the result would be less mechanical and give evidence of better artistic intention. The same is true with reference to the gold inlay as shown in Figure 16. The straight, abrupt line of the gold where it rests against the natural tooth structure is lacking in aesthetic contour; it might better be rounding, like in Figure 17. As nature despises sharp corners, she likewise abhors "straight lines." This standing resolution in nature is most emphatically enforced in the oral cavity, and hence the prosthesis should avoid at all points any straight lines from being exposed to view.



**OPERATIVE DENTISTRY.**

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

**CHAPTER XVIII.****GOLD FILLINGS — CONTINUED.**

The simplest fillings made of cohesive gold require exactness of manipulation to secure perfect adaptation to the walls and margins. Operators who comprehend fully the technique of adapting the substance very perfectly to tooth walls generally have their troubles sometimes in securing perfect contact and adaptation at margins.

For years the best authorities have agreed generally that margins for fillings of gold should be beveled, and excellent reasons are given for so doing. The sharp square corners of a crystalline substance like tooth enamel will mar and crumble much easier than if it were rounded or beveled slightly. Some later writers, however, advocate the absolutely sharp corner in almost all cases; claiming a finer line of contact in finishing than can be made along a bevel; but the bevel described in this claim is exaggerated and not such as is advocated and taught by teachers along this line. A bevel may be made to such extremes that there is no well defined finishing line; hence the filling does not look well and such a margin is not good; but such a bevel is not contemplated nor taught among those who favor the bevel preparation. A slight bevel leaves a line as clear cut and well defined as a sharp corner, and the gold is thick enough to preserve its integrity in finishing. Some operators may be delicate and careful enough in manipulation to condense gold over a sharp corner of enamel and not mar nor crumble it in some little degree, but they are rare. Experience in this work is what led to the bevel, or taking off of the sharp corner, as the safer way for experts as well as the average operator, and experience shows that as fine lines can be determined as with a sharp corner. But square, rounded or bevel, the covering of margins with gold must needs be a very painstaking effort. The average operator does not make good gold fillings; or, in other words the average gold filling is not a good filling. A gold filling (or any other filling) that does not hermetically seal the cavity at the margins is not a good filling, no matter how well it may look. More practitioners fail in making good, close margins than in any other part of the work. One reason for this is that the gold is

brought up too nearly flush with the margin before an attempt is made to cover it, and then it is an easy matter, even with a careful operator, to bridge over little recesses and be unconscious of it until the finishing discloses the defect. Margins should be covered before the gold in body of filling is brought up to a level, and while the view is clear and distinct. Hand pressure is safer at this point than malleting ever so lightly, until at least the backing up of the first laid in contact is thick enough for protection. Keeping the gold higher at the walls than in the center until the margin is reached and covered over is a way to avoid bridging a crevice that might otherwise be left close to the margin.

Of course in approximal cavities where the cervical wall is the base the side wall margins are covered as the filling progresses and the process and manipulation is very much different, but not much less painstaking. In one case the force used to condense the gold is directly against the margin; in the other the gold is held tight to the margin while the condensing force is applied in the axial direction or in the direction of the marginal line, and specially designed pluggers in rights and lefts are usually necessary. In all cavities having a cervical wall the first operation is to cover the cervical margin as soon as anchorage is secured of the first gold introduced. This is perhaps the most difficult margin to deal with owing to its more or less obscure location, particularly as regards proximal cavities. The sharp angle should be taken off every cervical margin and the gold carried over by hand pressure. Malleting, if done at all on the margin, should be very light until a good, safe thickness of gold has been secured. A thin bladed burnisher may be used to advantage to burnish the gold tight rootwise when enough gold has been placed to be not easily dislodged. A very satisfactory method to prevent building out an overhang is to repeat the use of the burnisher approximately several times and then while the space is yet quite free, use finishing strips before going further. This may not be done without danger of producing a leak through the dam at that point in some cases unless great care is taken, and even if great care is taken, one must proceed with caution or determine beforehand whether safe or not. No oiled strip would do at this stage of the work—nothing but a strip dry and clean. When stripping can be safely done on a partially built up filling, as above intimated, it saves considerable difficulty in the final work of finishing, and furthermore it permits of the introduction of a wedge without unduly crowding

the gums to produce the space needed to make and finish the proper contour at the point of contact. Many fillings well shaped with the plugger are spoiled easily in the disking and stripping and especially a rapidly revolving disk. A disk should never be run between contact points. Run them on either side, lingual and buccal, but leaving the contact point to the last use strips only to shape that place. Spread the teeth a little more with the wedge to let the strip in without tearing or binding too much, but use them cautiously at that aforesaid contact point, and not cut away too much.

It is a very great satisfaction to use a matrix in filling approximal cavities if one can do so and feel secure about covering margins, for without due care and judgment and an intelligent understanding of the matrix problem, failure to cover will occur. If one imagines that he can pull a matrix tight up to a tooth with no yielding, and fill perfectly with gold in the depths of acute angles formed with the matrix and tooth walls he is very much mistaken. It is difficult to even force amalgam or cement in without deficiencies of contact. If the matrix is left a little loose so that a thin plugger may carry the gold in between matrix and margin of cavity, good work may be done if great care is taken with every step.

The writer has a method of using a matrix in many cases that many years of experience has proved excellent. It is called the **padded matrix and plenty of space is needed. Take a piece of thinnest ribbon-saw, and with shears shape to suit the case letting it extend well beyond the cavity on both sides—speaking of approximal cavities in bicusps and molars especially. After it has been tried in place to see that all is correct, remove and place on the side next to the cavity a pad made of a third of a sheet of non-cohesive gold folded on itself until the right size, and carry to place all together. The pad should extend well beyond the margins of cavity, and then the matrix should be forced tightly against cavity by use of wedges or a separator. When this is done cut the gold down the middle on the matrix so that it will turn into the cavity on either side and along the cervical wall; then proceed with the filling, taking pains to wedge the gold in between matrix and the gold already over the margin making a tight contact.**

Of course there are cases where this method cannot be used with satisfaction on side-wall margins, but it can most always be used to get a good, safe and sure covering of the cervical margin and the corners, extending up the side margins as far as it may. The rest of cavity to be filled as usual, looking after margins not covered with usual painstaking.

(To be continued.)

**DENTAL THERAPEUTICS.**

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

**CHAPTER XVIII.**

With the present understanding of how some medicinal agents act upon the living organism, it is easier to understand what and when certain pathological lesions can be treated with as nearly a specific agent as possible; and as potassium is one that is so frequently called into use, it is quite necessary to give somewhat in detail its physiological action. If potassium chloride be administered into the animal organism, it will have a certain definite action. The chlorine ion, when liberated into the body, seems to have but little deleterious effect, and the true action is due to the salt action or the potassium itself.

The investigations of Loeb and others have pretty fully demonstrated that potassium has a poisonous effect on animal protoplasmia, as well as on those of the lower forms of life. In the higher forms its action is observed to be that of a depression on the central nervous system and upon the heart, followed by muscular weakness and apathy. Respirations are rapid and more or less intermittent, due, in most instances, to anaemia of the brain and cord, and when the conditions are such as to terminate in death there is weakness and convulsions. When potassium is administered into the frog there is an irregularity and slowness, followed by heart depression. An isotonic solution of sodium chloride will also bring the heart's action to a point resembling very much that of potassium; but demonstrations have shown that potassium chloride acts more quickly, and, in the majority of instances, more apt to terminate fatally. It has further been demonstrated that a solution of common salt will restore the heart's action after it has been brought to a standstill by the administration of potassium; thus demonstrating that the action of potassium is that of a specific poison in addition to any salt action. Ringer's investigations showed that the frog's heart, when under the influence of a solution of common salt, minus the presence of potassium, was much more dangerous than if a potassium chloride solution was administered in conjunction with the sodium solution; and upon this basis has been worked out by Loeb, Ringer and others, the fact that it was possible to completely ionize the proteid molecule, as represented in the protoplasmic structure of living

tissue; and that both sodium and potassium when existing in a solution isotonic to the tissue cells, have a beneficial effect upon the contractility of muscular fibers.

When the actions above named were observed and followed out to anything like a conclusive understanding of the subject, many looked upon the actions of potassium as dangerous, but it was afterwards observed that only an isotonic solution really increases the heart's action to any great extent; and that large quantities of potassium may be present in the mamalian body without doing any great damage; for the simple reason that only small quantities of the salt is broken up and passed into the protoplasmic structure of the tissues.

In a great many instances where quantities of any great amount are in the system it will cause irritation of the peripheral nerve endings. A concentrated solution applied to an exposed nerve causes contraction of the muscles supplied by this nerve.

thus showing that certain quantities of the potassium becomes ionized and is passed into the protoplasmia of the cell, thus increasing the irritability of the protoplasmia.

Potassium chlorate was introduced into therapeutic use under a mistaken theory that it would supply oxygen to the tissue. This form of potassium has been used quite extensively in certain diseases of the mucous membrane and deeper tissue structures of the oral cavity; and when it was first brought into therapeutic use for such lesions, it was considered to be absolutely non-poisonous, but in some instances it has proven to be possessed of poisonous property. The chlorate of soda and the chlorate of ammonium produce symptoms very much like those of potassium, and their poisonous effects were considered to be due to the salt action itself; but later it has been demonstrated that the action is that of the ions of these substances after they have been separated into their various simpler elements. The so-called chlorates have a saline taste which continues for some time. Some individuals may become peculiarly effected by any of the diffusable salts.

Bromide and iodide of potassium is one of the older agents and was used principally for such diseases as chronic tuberculosis, syphilis, and many of the more chronic forms of disease. The form of iodide of potassium is usually a combination obtained by adding a slight excess of iodine to a solution evaporating to dryness, calcining with charcoal and purifying by crystallization. It is soluble in



water about four parts to three of water. Its medicinal properties, as has been previously stated, is indicated for tertiary syphilis. In the second stages of this disease sixty grains may be administered in the twenty-four hours. Potassium iodide is beyond question beneficial in chronic inflammation and swelling of the parts, especially on mucous surfaces; and all forms of chronic local infection. In this connection I wish to call attention to my experience and observation in the internal administration in certain forms of pyorrhea alveolaris. This agent was suggested to me in the treatment of this disease by Dr. Stanley P. Black, bacteriologist and pathologist at Mercy Hospital for many years. In chronic forms of pyorrhea alveolaris, it seems to have a most wonderful beneficial influence upon this disease in certain conditions. Four cases of this disease treated with iodide of potassium in which a perfect cleansing of the teeth (that is the removal of deposits) brought almost universal relief. However, it would be well to state here that the administration of this agent internally should be followed for a week or ten days before the local treatment is begun. This at once will suggest to those who hold to the theory that pyorrhea alveolaris, as it is called, is a constitutional disease. It means nothing of the kind, for in the case of actinomycosis, it has been observed by Sawyer and others, that after a bacteriological diagnosis was made of this last named disease that potassium iodide administered internally gave complete and permanent cure of this disease; consequently, constitutional treatment is sometimes beneficial in local pathological lesions. And by this means alone can we hope to accomplish the desired end which is to cure. So many members of our profession are constantly confusing predisposition and susceptibility with that of disease; and perhaps there is no remedy that will yield such beneficial results in local pathological lesions of glandular or mucous tissue as will potassium iodide; therefore, it is beneficial. Clinicians have long since recognized the clinical benefits to be derived from the administration of potassium iodide for the removal of chronic tumors, such as syphilitic gummata, chronic pleural exudates, and indolent ulcer, and such chronic specific inflammatory condition as represented in pyorrhea alveolaris, actinomycosis, etc. When potassium iodide is taken into the system it meets the fate of all electrolytic salts. It undergoes the dialyzing action of the cells by means of which it is broken up into its ions, the potassium ion and the iodine ion. The potassium ion soon unites with some acid radical and goes off as potassium chloride

or potassium carbonate, etc. While the greater part of the iodine is eliminated by the kidney, a small quantity is given off by the salivary and sweat glands. A certain definite quantity of the iodine enters into a loose chemical union with the protoplasmia of the cell, forming what is called the iodine proteid compound. This is especially true of the mucous secreting gland which seems to have a greater affinity than other tissues of the body; and in such a union these malignant pathological conditions usually originate. These loose iodine proteid compounds slowly break up and liberate free iodine, which may account for the fact that iodine is liberated from the body for months after the administration of iodine is discontinued. This slow liberation of iodine in the tissues gives the iodine a chance to act as a slight irritant to the cells, causing a functional activity of the cells, which necessarily increases the nutritive function of the body, which in turn increases the power of reparative processes. Further this irritative action increases leucocytosis and cell proliferation, which according to Mallory increases phagocytic action of the cells, thus causing the elimination of bacteria and other foreign matter. This is considered the real cause for the so-called absorption of new growths, such for instance as syphilitic gummata, or chronic exudate as is sometimes found in cerebral spinal trouble. This is simply analogous to the action of irritants applied to the skin for the removal of new growths and inflammatory processes. Irritation simply increases cell activities of the healthy tissue and increases flow of blood and lymph to the part which carries away the dead matter destroyed by the phagocytic action of the leucocytes and newly formed tissue cells. This action of iodine renders it, from a pharmacological standpoint, a specific in all conditions in which internal irritation is indicated, but in addition to the irritating effects iodine has an antiseptic action, as it has been proven that it shows a strong affinity for some of the micro-organisms which are causing the internal or local lesions; therefore, it acts in a two-fold way, irritating the cell and causing cell proliferation, and also increasing phagocytic action and showing a special antiseptic property to certain forms of bacteria. It might also be stated here that it is only in recent years that the medical profession have recognized the importance of internal treatment for certain local lesions that are well known to be of an infectious nature.

In 1901 I reported four cases of actinomycosis before the Chicago Dental Society, in which I detailed the beneficial effects of the treat-

ment of one of these cases with potassium iodide. Since that time I have had the privilege of seeing and following treatment of another case of actinomycosis. The infection in this case had taken place either through the second or third molars, on the upper left side, the tumor had been growing for something like three years. The patient was a ranchman, who had previously suffered with toothache, with one or the other or both of these teeth, but being unable to reach a dentist at the time the teeth were allowed to remain an enlargement appeared and gradually grew larger; he later on consulted a physician, who attempted to remove the second molar but failed. The patient began to suffer more pain, and becoming alarmed, went to a large city and consulted men of considerable reputation, who informed him that it was a sarcomatous growth, and that it would be necessary to remove a portion, if not all, of the upper jaw on the left side. He later came to Chicago and consulted Dr. Miller, who was suspicious of the case at the time and informed him that it would be necessary to remove the teeth before anything else was done. The patient was referred to me for this purpose, and upon examination I found a sinus on the buccal side of the alveolar ridge. I was able to obtain some of the inflammatory exudate, and on microscopic examination found the micro-organism of this disease. The patient was in a somewhat exhausted condition and felt unable to undergo the operation of removing the teeth at that time. He was put on a treatment of potassium iodine, thirty grains a day, for a few days, when the quantity was increased to sixty grains each twenty-four hours. His appetite was better, the enlargement of the jaw grew somewhat softer and more pliable under the fingers, and it was decided to keep him on the potassium iodine treatment for some little time longer before attempting to remove the roots of the teeth. The enlargement decreased until it had almost disappeared before a removal of the teeth was attempted.

While in all cases it would not be advisable to defer the surgical operation of removing such teeth and other pathological tissue, with a hope of entirely curing the disease, there is no question but what such pathological conditions can be cured of such infectious diseases as the one above named, with the treatment of potassium iodide in the manner indicated.

According to the investigations by Loeb, Mathews and others, there is a question if many of the infectious diseases, local or otherwise, cannot be benefited by certain combinations of certain electro-

lytic salts, when introduced into the body so as to make a chemical combination with certain toxins that may be circulating in the animal body. Much light has been thrown upon the nature of salt action by recent advance of physical chemistry. In the animal body certain physical experiments cannot be followed out as in the laboratory; but the investigations of Mathews has shown that certain poisons in the body can be eliminated by the intravenous injection of certain electrolytic salt solutions.

It must be borne in mind that all salt solutions do not act the same on the living cell, for investigation has shown that some salts diffuse into the cells practically without any interference, while, on the other hand some fail to diffuse through the cell wall of certain cells. The penetrating power of salt seems to be somewhat associated with the properties it possesses of precipitating certain colloid substances from their solutions in water, thus the sulphate of alkalies which permeates a large bulk of gelatine with difficulty will precipitate globulin out of solutions much more readily than will the chloride of the alkali salts. One school of physiologists holds that the physical force manifested in the salt action is sufficient to explain the phenomena of absorption and excretion, while the other school holds that the physical force of salt action manifests itself only in so far as to influence nutrition.

According to the literature of recent investigations a great deal could be said on both sides of the question. There is one important factor to be borne in mind from the standpoint of pharmacology, and that is, that it is the action of the ion of a molecule rather than the action of a molecule as a whole; for instance, potassium cyanide is considered to possess a very poisonous action. As a matter of fact the molecule KCN does not act as a whole on the proteid molecule, but it is the CN that is split off the molecule and enters into a chemical combination with the proteid molecule, leaving the potassium ion to pass off in the waste products as potassium chloride, just as was stated in regard to the potassium iodide. All of these chemical and physical laws are not easily interpreted by a vast majority of the profession at large, yet they are of the greatest benefit in the interpretation of certain drug actions. As yet there is no means of explaining the action of certain alkaloids in this manner, but physiologists and pharmacologists have conclusively demonstrated that these chemical laws are applicable to certain of the metals as above explained.

The combination of potassium in its various forms with other salts, such as bromine and chlorine, is very similar to that of iodine, and its beneficial effects can be attributed to its combination with other substances like iodine and bromine, for as has already been stated, it possesses but little power of action within itself.

(To be continued.)

# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller.

(No. 14.)

Seein' things,  
Not at night, necessarily—  
But any time, day or night,  
Is, when you *look at it*, a curious demonstration of a human function.

Seein' things that *are* is not so curious as seein' things that *are not*.

Both lead up to trouble sometimes. A man may see too much; and again not enough.

Some people can see things that are not and weave a fabric out of it that makes others turn green.

Some men enjoy making up their clientele largely in this way.

It looks well in the smoke of their pipe; but it is thin smoke, can be seen through, and how about it when rent day comes around?

A dentist read a paper describing a new method of performing a certain operation.

He said, after an experience of a year, performing it about 3,000 times, he was ready to pronounce it a good thing.

If a man is lucky he can perform it in an hour, rarely less.

Cutting out fifty-two Sundays and some holidays we can take 300 working days as more than fair in a year.

Seein' things in figures makes it appear about ten cases a day; and he's an all-around dentist with a general practice.

I surely see a pipe in that, and only go one eye on it.

You all know the fellow who looks into a five-dollar cavity in a tooth and sees ten in it—and especially if he needs the money.

You know another who sees things that can be done in one hour; but sees that three hours are consumed at \$5 per—or more. Extraordinary case (?), simple dishonesty.

It is curious how differently two persons may sometimes see the same thing.

And again, how one sees the same thing differently in two persons.

In one the thing seen is inexcusable; in the other, the same thing, if not quite commendable,

Is *looked* upon with a certain significant spasmodic action of the orbicularis palpebrarum.

I am glad to have some of my acts looked at in that way, particularly when I try to perpetrate a pun.

As looked at by some the punner ought to be punished (!!). I guess he ought. Send me down to St. Louis again—if you want me to dig for the tall grass.

It is said that the "great majority" have more or less astigmatism. This may account for the perverted view of some people.

Some people can't see a joke. If mine are not visible in the text or between the lines, you may take it for granted that it is a typographical error, or they are carried over to the next issue. You see, they are "out of sight."

Foresight is a most excellent way of seein' things, but there is one thing better, so everybody says, and that is hindsight.

Hindsight don't help out much after all. It is a kind of regretful vision. But it ought to help future foresight. Perhaps it would if we didn't have good forgetters.

I was down to St. Looney—ooey—mostly ooey—to the International Congress of Dentists, and Oh! what a hindsight I have got. Not of the Pike. No; the Pike was tame—except Hagenbach's.

I met a dentist down there who said, "Say! if I couldn't see something better to say than you do in your Toothsome Topics, I'd quit the job. They are bum. You get too personal. No names, of course, but no man has to give me a hunch to let me know he is treading on my corns. You got all mixed up on it anyway. Now the way of it was this—"

And then and there I was let into a delicate confidence which may furnish me later with a topic—to pick at.

Say, take a pike at this, "Collier's" for August 27th starts off an editorial in this way:

"Meat bills in our family have become so hair-raising that we think of dropping journalism for dentistry."

The man who wrote that must have been brought up since the days of the three and five-ring circus and has convergo-divergo

strabismus, and his eyesight is not good at that, to be seeing dentistry in such a light. What notions some people get.

Not long ago a well-to-do business man—as I look at him—solicited me for a contribution to a certain cause.

About that time a dentist in my neighborhood about my size, weight, build and general appearance was thinking of passing the hat on his own account.

I simply told this gentleman that I could not contribute, though the cause was good, because I had to do something for this above-mentioned dentist—besides, having troubles of my own.

“Humph!” That’s what he said. “Humph! I wish I had your bank account (*bank account!!*) and could make money as easy and as fast as you do.”

Easy! Well, I’ll be jiggered! I can count up a thousand and one dentists around the crossroads where I practice that don’t know what easy money is, and all have been wishing they had taken up some other vocation in life.

Gee whiz! there are times when I’d like to see myself as others—*some* others—see me, resident on Easy Street.

On the way down to St. Looey-ooley I saw a man who was asked to sit in. He sat. The more he saw the less he saw. The more anyone saw him the less he saw. Things that looked good to him looked better to some other fellow. He kept seein’ things but found nothing in sight. He and I learned something from hindsight. Don’t chip in until you have——

If you don’t wear glasses to correct your defective vision you will see, sometimes, rather disappointing visions. In the pocket of a coat that I had not had on for some time I one day found a bill. It looked good to me, like money from home. To the naked astigmatic eye it looked like a nice, new \$11 bill.

But adjusting my *pinchnez* I found it was simply a \$1 bill. I was thankful for that, though disappointed and ten dollars shy.

Going down again, I fished up another bill. Glasses were on this time and sight good. The figures were clear—\$8.40.

And talk about seein’ things, I saw in bright red across the face, “Pay promptly and save the discount.”

In another place it said “If not paid on or before Aug. — (and the next day was Aug. —) no discount will be allowed, but the water will be immediately shut off from your premises and remain

so until this bill is paid in full." This was a case of seein' things that are; but likely to be not. One bill wouldn't offset the other.

There's a saying that, I *think*, comes from the Bible which starts off at least like this: "Cast thy bread upon the waters and it will return *after many days*."

Now, when one's bread is all dough, it is all the same I suppose. Cast thy dough, etc. Well, I've tried that and I can assure you that surely *many days* will elapse before you see it again. I bet that \$1 on the Salvation Army.

Seein' things and things is not due altogether to abnormalities, but peculiar effects come from seein' things in different lights.

Take for instance that porcelain inlay. The west side looks fine, especially in the glow of the setting sun; but how about the east side? Or that north end?

Inlays come out some times—that is, some operators' inlays do; but the queer thing is, that it is rarely if ever the ones come out that you want to do so on account of off color.

But I contend that fillings come out just as often as inlays do—take them as they run.

I know a very fine operator who had a *filling* come out under most embarrassing circumstances.

The case presented was a very badly diseased antrum, being enlarged by neglect to about the size of a goose egg—or less.

It was a big cavern, to say the least, and the opening into the nose had become excessively enlarged.

It became necessary to pack it with antiseptic gauze, and a narrow roll was secured, and inserted in the usual way.

The cavern was so great that nearly the whole roll was consumed. It was pronounced as good a cotton filling as any man could make.

The patient, a man, upon being dismissed, took the car for home. After a time he felt something tickling in his nose.

He gave a sniff or two to dislodge it but without result. From a sniff he went to a snort that was so tremendous that everyone craned their necks to see.

At this moment he felt and saw something fluttering on his moustache, and he thought he'd just quietly pick it off and throw it down.

He proceeded to carry out his thought—and his arm to full length. It was the cotton strip.

The other hand then took an inning; then the first, and so on, unreeling the strip.



The man was embarrassed but couldn't stop. Some women got hysterical, and others signaled to stop and left the car. Some men laughed, and some marveled, but the patient kept busy, hand over hand.

By this time the conductor thought it time for him to "butt in." He was an Irishman. Stepping before the man he said:

"Come, now! Come, now! Phwat is goin' on here? Phwat kind av a bum wizzard are ye anyway, to be doing yer tricks on a public conveyance? Where's your license? This is no theater, or vaudeville show. Phwy don't yees go and hire a hall and not be workin' the street caars wid your monkey doodle business?"

"Where does yees want to get off? I'll let ye off here if ye want. Well, if ye stay on ye don't want to be reelin' off any more ribbons out of your head. By the looks av that bunch on the floor your head must have been holly. When ye get off take your paraphernalia wid ye an 'don't lave it behind to tangle the feet of the passengers. Put it back on yer reel if you like when ye get off but not in here. Wan woman was near throwin' a fit, seein' things like that; and that man in the corner was thinkin' he had the jamsey-jams. At first I thought meself I must have had a drink or two too much; but I'll swear to man I didn't have wan since last night whin I quit me last trip. You'll get run in the first thing you know wid your wizzard jiggery, and small worry for that on my part. If yees have anything more up your sleeve keep it up till yet get off or you'll be seein' things that are rale and that will bate yer wizzard game all to smithereens. Mind now I give ye fair warnin'.—Thirty-first street! Thirty-first! All right! Bing!—Bing-bing! Thirty-second next!"



## DIAGNOSIS.

### THREE POINTS FOR CONSIDERATION.

There is one branch of dentistry that has been sadly neglected, not only by the rank and file in our profession but by our colleges also.

This branch is diagnosis. Diagnosis is the most important part of our work. It is the foundation of successful dentistry.

If a practical dentist can diagnose a case, tell what is the matter and the correct treatment and material to be used, he is in a better position to give competent service, though an inferior workman, than a skillful operator who does not know exactly the nature of the case or which treatment to apply.

If young graduates expect to establish offices and do skillful work, should they not be qualified to diagnose their first case? You will answer "Yes." But can even a majority of them do so? "No," most emphatically "No."

Is this not a deplorable state of affairs? Ask graduates, even from some of our best colleges, if diagnosis has formed a part of their work, if they have been required to examine practical cases, decide the complaint, and the remedy and report same to instructors, and they will inform you that no such opportunity has been given them. An occasional professor may ask a student, "Well, what do you think is the matter with this tooth?" "How would you treat that tooth?" or "How would you fill this one?"

Is this sufficient to awaken in student the necessity of first knowing definitely what is the matter and then knowing positively how to remedy it?

Any thinking person, even outside the profession, will answer "No." Twentieth century patients are demanding something more of the profession even in the way of diagnosis than was accepted in the past.

It is not sufficient that the dentist with the aid of mouth mirror decides the number of fillings, crowns or bridges which the patient requires and the amount of money they will cost. Patients are constantly asking, "What is the matter?" and "Why is this the case?"

Progressive dentists impress progressive patients. Such being the

case, it is wise for a dentist to spend sufficient time to diagnose a case thoroughly where a patient requires more than cleaning.

The teeth should first be thoroughly cleaned, then the general condition of the patient's health studied, the condition of the force of mastication, the mucous membrane conditions of the teeth as to form and structure, etc.

Then comes the study of conditions outside the mouth. Impressions of the upper and lower jaws are taken and poured up. The plaster casts are articulated. These casts not only help the operator to a better understanding of the case but may be used to illustrate to the patient the condition of his mouth and to show him what the dentist intends doing. And, as, seeing is believing, in no better way can you impress upon an intelligent patient the necessity for work but also the advisability of doing it as you propose.

Some may question the willingness of patients to pay for diagnosis. Is there any unwillingness on the part of intelligent patients to pay for the examination of a physician? No. A physician says to a patient: "I must examine you thoroughly before I can tell the exact nature of your complaint." He has educated his patients up to an appreciation of a right beginning; we must follow in his footsteps. And as for the matter of the patient's objection to paying for services, I will say, try this method to satisfy yourself.

I have tried this plan the past year and it has proved satisfactory to my patients as well as myself.

#### APPEARANCES.

If there is any one thing which we owe to those with whom we come in contact daily, it is a good appearance. A good appearance is in itself a letter of recommendation. A person who has been properly groomed and equipped for his work carries with him a refreshing atmosphere; while on the other hand many redeeming qualities are discounted by a slovenly appearance or unclean attire.

In no profession of which I know does this hold more true than in dentistry. Most of our patients are women. Woman is by nature fastidious and highly susceptible to external influences.

Let us suppose that one of the fair sex calls upon Dr. Smith or Dr. Jones, as the case may be for the first time to consult him regarding her teeth. His appearance and the appearance of his office in general will be his letter of introduction to her. Of course she will expect to find the "dear doctor," as well as his office, clean and

orderly. If externals do not come up to expectations, the doctor's skill will pale into insignificance in the mind of one fair patient.

If we can only be led to realize the necessity of having our surroundings in harmony with the ideals of dentistry we will uplift ourselves and our profession.

#### CLEANLINESS.

The progressive dentist realizes the necessity of cleanliness. He realizes that patients are favorably impressed by a clean, bright, orderly operating room, free from the odor of drugs.

The modern conveniences of a city such as a fountain cuspidor with its crystal bowl flushed with sparkling water, and the compressed air to spray each patient's mouth with some pleasant aromatic wash, tend to make our daily toil more comfortable to ourselves and our patients.

Another aid is electricity, which makes it possible for us to have a constant supply of boiling water for the sterilization of instruments, and let me say here that there is placed on the market an electric sterilizer that makes this possible. It consists of a boiler and cover made of spun copper (has no joints). It is fitted with a rheostat to control the heat. It is useful and artistic and makes a good impression on patients.

In this article I have aimed to awaken an interest in diagnosis, appearance and cleanliness. If it impresses the reader I shall be doubly repaid, and in closing add this thought: We get out of our profession just what we put into it—no more, no less.

F. T. M'NAMARA.



## A CONSIDERATION OF THE "PERIDONTIUM" OR THE MEMBRANE WHICH HOLDS A TOOTH IN ITS SOCKET.

[Extracts from a lecture upon the "peridental membrane," given by Prof. George W. Cupit in the regular course to the students in the Dental Department of the Medico-Chirurgical College of Philadelphia.]

The peridental membrane is formed from the mesoblastic layer or connective tissue and is resolved from a part of the tooth follicle or sac in which the tooth formation takes place. It is at first a soft cellular structure and its principal function is the formation of the true bone of the tooth or the cementum. This is the root-covering and the softest of the three portions of the calcareous matter of the tooth. The enamel is hardest; the dentine, while by far the largest part of the tooth, is much softer than the enamel; and the cementum is the softest; so the tooth is hardest upon its outer surface and softer as it approaches the deeper, or that to which is attached the peridental membrane and upon which it depends for its attachment to the jaw.

This membrane is very similar, anatomically and functionally, to the periosteum of the bones. It is a bone forming and bone nourishing membrane. As calcification or ossification takes place in the developing tooth many of its cells are caught in the calcareous matter of the future cementum and are often completely ossified themselves. As the substance of the cementum produced by this membrane thickens and the cells, besides being caught within it, become more and more fibrous, we have a very strong attachment of these fibers in the substance and upon the surface of the root-covering or cementum, and by means of which the tooth is so firmly held in its position. The membrane ultimately becomes a ligament, as it changes from a bone-forming to a tooth-supporting one, and as the joint of a tooth in its socket is classed with the other joints of the body, so the peridental membrane is classed as a ligament, holding the tooth to its bony alveolar wall, just as one bone is held to another in the joints of the body, by their ligaments.

The peridental membrane is much more important, however, than any ordinary ligament. First, because it is, in its earlier stages a very delicate membrane, is very vascular, or full of blood vessels, is continually undergoing changes, and from its function and position is easily injured, irritated and inflamed. It is a question, in fact, whether it is not rather more important in its relation to the tooth, than the very pulp or nerve itself.

It has been said that it is, next to the pulp, most prolific of tooth-ache. It is also a question whether it is not even more so than the pulp. One thing we may be sure of, and that is, that many more teeth are lost from disease of the peridental membrane than from any other cause, if not from all other causes combined.

So it behooves us, as dentists, to give this most important dental organ all the consideration possible. It is the office of every dentist, his most prominent work, to preserve and retain all of the natural teeth it is possible to keep. If then, so many teeth owe their loss to disease of the peridental membrane the dentist who would do most towards saving the natural teeth in the mouth, must give very largely of his time and study to the consideration of this organ and its environment; its anatomy, histology, function and nutrition; to the consideration of the causes, symptoms, conditions and treatment of its diseases.

Let us consider for a while the nature of some of the tendencies which induce disease in this all important organ and from which so many of the teeth are lost. If, in the first place, we notice how near to the margin of the gums this peridental membrane is placed, lying upon the tooth-root, immediately under the free margin of the gum-tissue and extending along the entire length of the root of the tooth to the apical end, we shall see how easily injuries to the gum, by biting too-hard substances and allowing food particles to rest upon the gum margin and about the necks of the teeth, will induce inflammation not only of the gums but also in its direct relation to the gums of the peridental membrane also. Anything which induces inflammation or congestion of the gums, will endanger the more important organ, the peridental membrane. Being deeper seated and not so readily affected by remedies for the treatment of diseased conditions, this membrane does not respond so readily to medication. It is also more prone to infection in an inflammatory condition and is not so easily sterilized as if placed upon an open surface and where antiseptic mouth-washes and sprays may directly reach the area of infection.

In all cases of congestion and the later stages of inflammation, there is sure to be some degeneration of the accumulated blood as well as of the tissues, lying near—gum and peridental tissue, alveolar structure of bone, etc.—involving all of the parts in the environment of the teeth. One of the forms of degeneration of the blood and tissues lying about and upon the roots of the teeth, in the gums,

bony process about the teeth and in the organ of their attachment, the periodontal membrane, is that of calcareous degeneration and deposit of the hard lime salts. These in turn become sources of irritation in the tissues and with a gouty diathesis or inherited tendency to gout or rheumatism, the salts deposited are the urates of lime and soda, (accumulations of waste products of the system due to altered function of the excretory organs, the kidneys, and skin. etc.) and act as literal poisons where the accumulations and infective inflammation occur. These areas of infective inflammation and degeneration are injurious, not only because the teeth and the adjacent parts are affected, but because they lead to many forms of systemic derangement and organic troubles. Because the products of decomposition, from the simple active form of inflammation with acid reaction of the exudates to the complete destruction of tissue with the formation of pus, swarming with bacteria and poisonous ptomaines, because these products are mixed with and contaminate all the food that is masticated in mouths so affected, and as a source of nutrition the food is literally poisoned by these elements. How is a system to be nourished under these conditions? Is it any wonder that stomach, liver and intestinal troubles arise when these organs must depend upon food thus contaminated for their well-being and functional activity? The wonder is that there do not occur many more and more serious organic diseases from infection arising from these mouth conditions.

It is not infrequent to find mouths, otherwise clean, or so to all intents and purposes, but with a form of chronic infective inflammation deep-seated often with pus oozing from about the necks of the teeth, with receding gums, denudation of the tooth-root, and atrophy of the alveolar process, causing sooner or later a decided loosening of the teeth and their final loss from a breaking up of the attachment to the jaws. And this is the way in which a great majority of all teeth are lost.

There is more than the loss of the teeth so affected, which is in itself a matter of serious consideration, especially for us as dentists. As more than mere tooth-tinkers, we must see farther than the mouth, and with this as a cause for more general disorder, recognize systemic disturbances. We must see the results of acidity in the mouth; of throat affections, tonsillitis and catarrhal conditions, both infective and infected; of gastritis; intestinal indigestion; and most important of all, a general anæmia.

This occurs especially in children, which in many cases, arises from the circulation of decayed and waste matter from the mouth, with its decaying teeth and inflammatory conditions incident to the change from temporary to permanent teeth, and its blood-destroying elements. The blood becomes impoverished by the destructive effects upon the red blood corpuscles of these poisons in the circulation and the absorption of its limited supply of oxygen.

The blood depends for its oxygen-carrying power upon the number of its red blood corpuscles. Normal blood is slightly alkaline in reaction. When, from any cause, there is irritation, and this is largely due, in the blood stream, to the presence of bacteria, with a destruction of blood corpuscles, and a loss of functional activity in the red-blood corpuscle and a consequent loss of oxygen, the blood becomes more acid, and thus loses its oxygen-carrying power, and with the loss of oxygen there is also a loss of cell functional activity, slight acidity, a consequent loss to the general vitality, and a greater tendency to the progress of disease, from lowered vitality and lessened powers of resistance.

These are the natural consequences of neglected local disorders manifesting themselves in a disturbed systemic condition. And many, if not all, of such disturbed conditions of the system might be, in part, if not entirely, prevented by recognition and treatment of a corresponding or correlated local disease. The mouth, the beautiful entrance and vestibule of that "house more beautiful" within, should most of all be clean and in condition of perfect health. Here begins the wonderful change which the nutrient material must undergo before it is manifested in the quick, spring step; the clear, bright eye; the ruddy skin; the merry laugh and the light heart that mark the condition of good health.

We are largely responsible for lack of these if we fail to recognize and relieve conditions which interfere with the fulfillment of these naturally inherited physical qualifications. No system can be properly nourished, no organs perform their normal functions, if the food supplied for such nourishment is mixed with a percentage of poisonous and injurious matter.

The first process in the preparation of food for the system is its mastication, its trituration or division and mixing with normal fluids secreted by the glands in the mouth. If the teeth, the organs of mastication, or the tissues about them, are diseased, just in proportion to the diseased condition will the food be contaminated and



rendered unfit for proper nourishment. With this as a watch-word let us see what measures should be observed in order that these organs may be kept in perfect condition, be made to perform normal functions and that no admixture of injurious substances takes place.

The most common evidence of the disease is accumulation of tartar (salivary calculus), due to abnormal condition of the fluid secreted by these glands; associated with this is a congested line of gum tissue at the gingivae or margin, and the deposit of salts of lime and soda from the degeneration of the congested blood in the gums and periodental membrane. These accumulations only aggravate the inflammatory condition, which makes it a progressive disease, growing more and more extensive as time goes on, and including more and more of the surrounding tissues.

The first step in the treatment is the thorough scaling of the whole surface of each tooth in turn, not forgetting to completely scarify the gums and deplete them of the congested blood. This process of scaling should continue at each sitting until all accumulations have been removed, the teeth left smooth, and the gums restored to healthy color, filled with new blood and all hypertrophy removed, and their margins adherent to the necks of the teeth. At each sitting, just before dismissal, the gums and teeth should be painted thoroughly with tincture of iodine. The tooth surface exposed should be thoroughly polished, using powdered pumice-stone and orange-wood stick for this purpose, and convenient instruments used to facilitate reaching all surfaces. Polishing should be done at intervals of three days, for at least five times, until a bright, clear color returns to the teeth and hard and firm gum tissue, of a normal pink color is obtained. Associated with the treatment at the hands of a thorough, careful and conscientious dentist, there must go the regular daily care by the patient and his co-operation instilled and no return to the former condition allowed to take place from indifference or neglect on his part.

A dilution of one to four of warm water and Glyco-Thymoline (Kress) respectively, should be used as a rinse and mouth-wash, as well as gargle, at least twice daily, morning and night by the patient. Treatment should be continued until the normal condition is restored, all traces of congestion, inflammation and even redness have disappeared from the gums, and the teeth show a smooth, bright surface and a clear color. A study of symptoms and conditions of the disease and the treatment closely followed and continued, must result in the saving of thousands of teeth, and their being restored to years of usefulness; teeth which otherwise had been neglected, were thought useless and needlessly lost.

# *Fourth International Dental Congress*

## **PORCELAIN AT THE FOURTH INTERNATIONAL DENTAL CONGRESS.**

**By J. M. Thompson.**

The long talked of congress is now a matter of history; but to those who were permitted to enjoy its many privileges, the memory of the pleasure and enlightenment will always be a source of satisfaction. From the most interesting paper down to the smallest clinic there was not a thing unworthy of careful attention. Besides the regular program, the large list of exhibitors (many of whom were represented by skilled demonstrators) furnished an opportunity for study, which of itself was a distinctive feature.

The writer, having a clinic the first day was able to witness only the results of the work at several near-by chairs. Dr. W. T. Reeves of Chicago demonstrated his ability in the line of making beautiful restorations upon central incisors, as did also Dr. W. A. Capon of Philadelphia, and Dr. Robert LeCron of St. Louis showed beautiful porcelain bridges set with gutta percha.

The second day several of the operators of note were absent, the principal demonstrations in porcelain being the table clinics of Dr. W. C. Herbert of Detroit, and Dr. W. T. Reeves, and something new in porcelain by Dr. F. E. Roach of Chicago. Dr. Roach's clinic was intensely interesting owing to the fact that he demonstrated a material entirely new to the profession. He was showing a fusible cement which, when perfected, will undoubtedly revolutionize the use of porcelain in the restoration of molars and bicuspid. The main feature brought out by Dr. Roach in connection with his material is the fact that it may be used without a matrix, something as yet considered impossible in porcelain work. To see a material mixed in the same manner as cement and placed in

a furnace without change of shape was the most astonishing part of the whole procedure. What this means to the profession at large, time alone will tell, but the prospects seem very flattering.

The many points brought out by the different clinicians will be impossible to describe at this time. It is needless to say, however, that porcelain is yet in the morning of its existence.

To take up the exhibits in a general way, the demonstrations of Dr. Stone, with the S. S. White Co., were full of interest and instruction. The Jenkins' porcelain was also beautifully demonstrated and received its share of attention.

Detachable pin crowns, such as Davis, Justi, Brewster and White-side, were shown by their respective firms; the use of these crowns in bridge work has done much to overcome many of the objectionable features of both gold and porcelain bridge work. Another interesting exhibition of this kind was the using of Diatoric teeth in crown and bridge work at the table clinic of Dr. R. C. Tryanhan of Hillsburg, Texas.

The wedgelock tooth shown by Frink & Young of Chicago is without doubt the best detachable facing yet offered for use in crown and bridge work. It is better than any dovetail facing or backing yet produced on account of the artistic appearance of the work when finished. The tips may be ground and the backing reinforced without the necessity of cumbersome joints and edges. Besides this, the extending of the backing up and over the cervical border gives added strength to both facing and bridge. It is to be hoped that this valuable facing may be soon obtainable at all of our local depots.

An improvement upon the Mason crown was shown in the form of a groove facing instead of a metal dovetail baked in, this latter being attached to the backing instead.

The clinic of the writer was the making of a practical case of the all-porcelain hood or jacket crown, as described in the August number of this journal. The case was an ideal one and full report may be found in the proceedings published in the Dental Cosmos and Items of Interest.

**ADDRESS BY DR. CHARLES GODON.**

President of the F. D. I.

Read before the F. D. I., August 26, 1904.

Mr. President, Ladies and Gentlemen: The first thought I wish to express here, in the name of the F. D. I., is a thought of admiration for your great nation, your mighty republic to which are bound by so many ties of sympathy and gratefulness, all the citizens of the world who are fond of liberty, progress and civilization.

Your magnificent exhibition is a new proof of the progressive genius of the American nation and deserves the first place among the manifestations of human activity. Hail to the splendid city of St. Louis, the place of it, and thanks for the hearty welcome to us.

I thank you, Mr. Francis, for doing us the great honor of presiding over this first meeting. And hail heartily to the American Dental profession to which modern dentistry owes its most important progress, and whose most eminent representative members are here with us. Hail! to the members of the dental profession of the world who have answered our calling and among them the members of the Executive Council, Harlan, Miller, Aguilar, and the members of the Commission of Education, of Public Hygiene, Brophy, Kirk, Zsigmondy, Roy, Bryan, Martinier and others, who have followed from the year 1900 every meeting of the F. D. I. through the world and have so taken an active part in its evolution.

And while speaking of the devoted fellow workers of this great international work, let us not forget those who could not come, Cunningham, Forberg, Hesse, Weiser, and those who have dropped by the wayside, Pichler, Frank of Vienna, the author of the report on Public Dental Hygiene, Barrett, the late eminent Dean of Buffalo, who, with his warm and stirring eloquence, knew so well at Stockholm how to portray the high aim of the F. D. I. above national dentistry. We address a touching souvenir to their memory.

To-day we inaugurate in St. Louis the session that finishes the work of the first period of the F. D. I. We shall soon have to account to the Congress of 1904 for the mandate trusted to us by the Congress of 1900 and give them back our powers. I shall not make a long report of the work of the F. D. I. during that period of four years; it is the task of our General Secretary and devoted co-laborer, Dr. E. Sauvez, who has participated in our work from the begin-

ning. I only wish to recall to you the principal phases through which the F. D. I. has passed.

Born in Paris in 1900 from the enthusiasm of the twelve hundred congressists come from every part of the world, it uttered its first lisps in Cambridge the following year, in the old English University, under the presidency of the eminent professor of physiology. Sir Michael Foster, who determined the real philosophical formula, defining and limiting the action of the F. D. I. in order to make of it a great advisory council of the world's dentistry.

Then next in Stockholm took place the session where in the midst of discussions for the working out of an international curriculum of education and the determination of the best conditions for the most effective public dental services, was decided the meeting in St. Louis of the Fourth International Dental Congress, in which we shall participate next week. From that decision ensued a long, feverish and fruitful contention about the interpretation to be given to the powers of the Federation or its representative members and relative to the conditions of its intervention in the different kinds of professional manifestations; that discussion was long as it lasted for more than two years and the session of Madrid in 1903 was almost exclusively devoted to it; feverish for it has caused deep discussions in the professional body, especially in the United States, and fruitful also for thus it has manifested its existence to every one, the importance of its action in the proceedings of worldly professional life and come to such a perfection of its constitution and rules that when confirmed by the next Congress they will secure for a long time, I hope, the success of succeeding periods.

A cedar requires more time to grow than a reed, says the poet, but lasts longer. So, during those four years the F. D. I. has grown slowly, spreading its roots in deeper and deeper layers of the professional life of every country, covering worldly dental manifestations with its sheltering branches, wider and greater and more and more numerous.

So it has proved the necessity of its existence by the acts it has performed during those four years, for the plan of work we leave is large enough to occupy several sessions, viz.: International Bibliography, Nomenclature, Code of Ethics, etc. So it will continue growing and the future will enlarge, I hope, the work that has already been done. And should it perish after this first period, we should have the consciousness of having performed good work by so

sowing all over the world just and useful ideas in favor of human progress.

In our twentieth century these international federations constitute a new organism, not only necessary to worldly dentistry, but to all departments of professional and scientific activity. When men thus meet in great peaceful sessions as universal exhibitions and congresses, wholly given up to the pleasure of exchanging their ideas, of communicating the result of their works and researches to each other, they must forget political and geographical limits and think only of drawing nearer to one another in those great international federations which are constituted in every branch of human activity and which now meet regularly at different points of the world.

As new agents of progress and civilization, these great federations do not attack the essential part of nationality for that remains under the safe keeping of political and diplomatic bodies, but their activities take place on the high plane of human science where territorial divisions have no action, where the end of strife can be but pacific, because the contests are only of the intellect, where the presiding goddess is like the splendid statue of Liberty in the harbor of New York, the torch of Truth in one hand, and in the other the olive branch, symbols of true human fraternity.

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### ADDRESS OF WELCOME.

By **Burton Lee Thorpe, M. D., D. D. S., St. Louis.**

Mr. President and Members of the Fourth International Dental Congress:

Proud to be an American citizen, prouder still to be an American dentist and to have aided, in an humble way in making it possible this great meeting is held, this is the happiest opportunity of my professional career to be delegated the very delightful duty of bidding you a most cordial and sincere welcome in behalf of the profession of the state of Missouri and the city of St. Louis.

Recognizing that each of you delegates coming from foreign countries and the states, territories and provinces of North America represent the best interest of the profession of your various localities, and that each of you have contributed either to the science, art or literature of dentistry, I am frank to confess the profession of Missouri feel highly honored to greet and welcome such a distinguished body of representative men and women of the dental profession.

It is fitting, indeed, that during the great Universal Exposition now in progress at the western portals of our city, that is held in commemoration of that historic event when Napoleon Bonaparte, with a stroke of the pen signed away and gave to Thomas Jefferson and the American people an empire of which imperial Missouri is the most important state.

It is fitting I say at this time there be held—as one of a series of many important educational and scientific congresses, the Fourth International Dental Congress.

It is the spirit of the exposition to show the achievement of human progress, so aptly illustrated by Mr. Chang You Tong, the talented interpreter of China, of this congress, in the following sentiment:

“Well blessed with man’s success, Columbia fetes  
In Festival Hall the Nations and her States;  
From ev’ry clime her honor’d guests have come,  
From far Cathay and Europe’s Christendom,  
From silver-mantled regions of the Poles,  
From golden shores where sparkling river rolls,

“Her States, like jewels in a coronet,  
Around the Hall her loving hands have set.  
The wine of friendship bubbles in the glass,  
From hand to hand the fragrant roses pass.  
The song of thanks is swelled by every tongue,  
The nation’s hymn is sung by old and young.

“Rejoice, Columbia! Lead the gallant van,  
And show the world the worth of man as man.  
Be thou the champion of the human race  
And break the chains which manhood may disgrace.  
The nations, young and old, to thee resign  
The sacred scepter and a task divine.”

It is also the spirit of this congress to welcome our professional *confreres* from every civilized country and unite with them in comparing the wonderful strides the humane and beneficent profession of dentistry has made by enmassing the investigators, teachers, journalists and active progressive practitioners of dental surgery, the recognized leaders in art, science and technique to demonstrate, both clinically and theoretically the latest and best in odontological science.

Gratified that in the master minds of two American dental pioneers originated the three most potent factors in dental education. The organization of the first dental college, the first dental journal, and the first dental society, that brought our calling out of chaos and made it blossom from a trade into a profession. We know that yesterday's achievements are not forgotten in the onward movement of to-day when all nations in reverential homage do honor to the memory of the progenitors of dental science—Horace H. Hayden and Chapin A. Harris.

We are not unmindful, however, of the achievements of the staunch pioneers of Europe to whom we also must give ample credit for their contributions to our profession.

One hundred years ago when St. Louis was a frontier trading post on the banks of yonder river, records say the first regular dental practitioner was Dr. Paul, a Frenchman of New Orleans, who located here in 1809, soon to be followed by other pioneers such as Isaiah Forbes, B. B. Brown, Edw. Hale, Sr., A. M. Leslie, Isaac Comstock, Aaron Blake, Jas. S. Clark, H. E. Peebles, C. W. Spalding, Henry Barron, Homer Judd, C. W. Rivers, Henry S. Chase, Wm. H. Eames, Edgar Park, Wm. N. Morrison, Henry J. McKellops, whose names will ever illumine the pages of Missouri dental history.

This coterie of men stood for progress and were foremost in city, state and national dental affairs and I thank God the better element of their successors also are imbued with the same progressive spirit, which is proven by their loyalty and liberality in making this congress a success. In behalf of these self-sacrificing, broad-minded, liberal-spirited dentists of St. Louis and Missouri, I welcome you.

We welcome all nations. We welcome you of Spain who generous Queen Isabella long ago equipped the fleet that brought Christopher Columbus on his voyage of discovery to our shores. Our hearts also go out to you for the courteous and chivalrous treatment tendered our sailors while the captive of your gallant Admiral Cervera at Santiago.

To you sons of England—the mother of America—we bid you welcome. Once we were your unruly child—you tried to chastise us, but we had outgrown our swaddling clothes; you failed, but now the British Lion and American Eagle are bosom companions. We heartily appreciate the recognition England has granted that distinguished scientist, our fellow countryman, J. Leon Williams.



To Sweden, who gave us Ericsson and so many of your sturdy sons and fair daughters that have by their industry made parts of America blossom as garden, we bid you welcome.

France, who in the dark days of the American revolution sent us the gallant Marquis de LaFayette and Count Rochambeau and their thousands of fellow patriots who did so much to aid us to gain our independence, we are especially indebted. With these generals of army and navy came two men who have left their imprint, indelibly stamped on American dentistry—Joseph Jean Francoise LeMaire and James Gardett, distinguished as skilled operators, contributors to dental literature and the pioneers in introducing dental surgery in America, we welcome you. Our national emblem, symbolic of free thought and free speech, is the Stars and Stripes. I believe if the American people were asked to add to it, in recognition of the brotherly love between France and America they would unanimously choose the *fluer de lis*.

To Germany, whose countrymen have done so much in developing America and have made such excellent citizens, we bid you welcome and thank you for the fraternal recognition you have given those two distinguished American practitioners who are the foremost in the world in their specialties—W. D. Miller and N. S. Jenkins.

Lord Bacon says "every man owes a debt to his profession" and we feel that you who speak in different tongues, who has crossed the seas to attend this congress, have at least in part liquidated your indebtedness to the profession.

To all nations, to all members of the Fourth International Dental Congress, our heads we bow in salute to you; we bid you welcome from the bottom of our hearts, our homes are open to you, our hands are at your service. We recognize you represent the intellect and flower of dentistry of the world and the profession of Missouri and St. Louis are flattered to have you here. It is our hope you may reap untold benefit from this historic meeting and when you return to your respective homes you may carry pleasant memories of our people, state and city and when your life's work is ended you may each realize the reward that Kipling so beautifully pictures as the heaven of the honest workingman as epitomized by the painter.

"When earth's last picture is painted and the tubes are twisted and dried,  
When the brightest colors have faded, and the youngest critic has died,

We shall rest, and, faith we shall need it—lie down for an aeon or  
two,  
Till the Master of All Good Wokmen shall put us to work anew.

“And those who were good shall be happy; they shall sit in a golden  
chair;

They shall splash at ten-league canvas with brushes of comet's hair;  
They shall find real saints to draw from—Magdalene, Peter and  
Paul;

They shall work for an age at a sitting, and never be tired at all!

“And only the Master shall praise us, and only the Master shall  
blame;

And no one shall work for money, and no one shall work for fame;  
But each for the joy of working, and each in his separate star,  
Shall draw the Things as he sees it for the God of Things as they  
are!”

### **TAKEN BY SURPRISE.**

**The Popular Chairman of the Executive Committee Remembered  
by His Friends and Associates.**

Last evening at the close of the Exhibit Room a meeting was called for the purpose of extending the thanks of the exhibitors to Dr. Donald M. Gallie, chairman of the Committee on Exhibits.

Senator A. C. Clark of Chicago, in a few well chosen words, made the presentation speech and tendered to Dr. Gallie a beautiful ring set with three precious stones.

The Doctor, after an effort to control his emotion, responded in his own original and hearty manner and accepted the token, thanking the contributors and committee in a brief speech.

Three cheers were given for the Doctor and great enthusiasm was shown.

The following article was presented, with list of exhibitors:

The undersigned exhibitors, at the meeting of the Fourth International Dental Congress at St. Louis, August 29 to September 3, hereby tender to Dr. Donald M. Gallie, chairman of the Exhibit Committee of the above-named congress, their individual thanks for the many courtesies extended to them, and to show their appreciation in such a manner as to cause him to remember it, do tender to him a slight token for this purpose.

The following exhibitors participated:

A. C. Clark & Co.

E. C. Moore & Sons.

Dentists' Supply Co.

R. M. Pelton.

The S. S. White Dental Mfg. Co.	Blair Dental Mfg. Co.
Hisey Dental Mfg. Co.	W. A. Dart, for M. & W.
Consolidated D. M. Co.	John T. Nolde Dental Co.
Ransom & Randolph Co.	Turner Brass Works.
American Cabinet Co.	Young Dental Mfg. Co.
Frink & Young.	M. W. Smith.
L. D. Caulk.	Dr. J. D. Fair.
C. H. Pinches.	The C. H. Phillips Chem. Co.
H. D. Justi & Son.	Klewe & Co.
U. J. McCuaig.	Kress & Owen.
E. DeTrey & Sons.	Detroit Dental Mfg. Co.
Hall & Ruckel.	Dr. L. O. Green.
Ritter Dental Mfg. Co.	Oakland Chem. Co.
W. V. B. Ames.	Johnson & Johnson.
McKesson & Robbins.	Myers D. O. Co.
H. C. Ney.	E. W. Dodez.
Randall-Faichney & Co.	John Milliken Co.
Harvard Co.	Lee S. Smith & Son.
Horlick's Food Co.	H. B. Vernon.
Lambert Phar. Co.	

Committee—A. C. Clark, G. R. Blickhahn, Joy L. Frink, D. D. S.  
—*Daily American Dental Journal.*

### INTERNATIONAL DENTAL FEDERATION.

The fourth session of the International Dental Federation was called to order in Music Hall, Coliseum Building, St. Louis, Mo., at 10:30 a. m., August 26, President Dr. Charles Godon of Paris, France, presiding.

Representatives from nearly every civilized country in the world were in attendance.

The address of welcome was given by Dr. William Conrad of St. Louis, and the presiding chairman, Dr. Charles Godon of Paris, France, responded in behalf of the federation. Dr. H. J. Burkhardt, president of the International Dental Congress; Dr. C. C. Chittenden, president of the National Dental Association, and Dr. H. A. Smith made congratulatory addresses. After the reading of the annual report by Secretary General Dr. E. Sauvez of Paris, France, other addresses were made by Dr. J. Y. Crawford, president of the Southern Dental Association; Dr. J. D. Patterson, editor of The

Western Dental Journal, Kansas City; Dr. H. B. Tileson of Louisville, Ky., president of the Association of Dental Faculties; Dr. J. J. Reid of Chicago, president of the National Association of Dental Examiners; Dr. J. Rhao of Mexico; Dr. Cay, Vincenzo Guerini of Naples, Italy; Dr. E. Sauvez of France; Dr. F. Aguilar of Madrid, Spain, dental surgeon to King Alfonso XIII; Dr. Alfred Burns of Sydney, New South Wales; Dr. L. C. Bryan of Switzerland; Dr. J. C. Crevers of Amsterdam, Holland; Dr. N. S. Jenkins of Dresden, Germany, and Dr. R. B. Weiser of Vienna, Austria. The morning session was brought to a close by the report of the treasurer, Dr. Florestan Aguilar of Madrid, Spain.

In the afternoon at 3 o'clock the federation divided into three commissions, education, hygiene and public dental service and international dental press, which met simultaneously in different parts of the hall.

At the session of the commission on international press, Dr. A. W. Harlan presided in place of Prof. E. Foeberg of Sweden, who could not attend this convention, because of important engagements. Dr. Harlan, editor-in-chief of the *Journal of Oral Surgery and Dental Medicine*, read a paper, in which he advocated an international review, published in four languages, which would unify and enlighten dentists of Europe and America. Acting on Dr. Harlan's suggestion, the commission appointed a committee, composed of Doctors Guilford, chairman; B. Platschick of Paris, France, and Windhorst of St. Louis, to present a plan for such a review.

The commission on hygiene and public service held an interesting session. Dr. N. S. Jenkins of Dresden, Germany, presided. Dr. B. Lee Thorpe of St. Louis welcomed the commission, and an interesting discussion followed the reading of a paper by Dr. George Cunningham of Cambridge, England, on the subject of "Public Dental Service." This paper was written by the late Dr. J. Frank of Vienna. Dr. Aguilar of Madrid, the court dentist to the royal family, led in a vigorous discussion, advocating new measures to relieve the suffering of the poor.

The commission on education held a short session on the Music Hall stage. Dr. J. D. Patterson of Kansas City, Mo., welcomed the commission and Chairman Dr. T. W. Brophy of Chicago and some ten others responded. Dr. Brophy read a paper.

At 4:30 p. m. the dentists of the various commissions adjourned and went out to the Fair, where they were received by Commissioner

General Gerald of France in the French pavilion. Late Thursday evening the election committee chose Dr. H. J. Burkhart of Batavia, N. Y., president of the federation; Dr. A. W. Harlan of New York City, editor of a dental journal, secretary general, and Dr. M. F. Finley of Washington, D. C., treasurer.

The National Association of Dental Examiners held a lively session, at which it was decided that no applicant for membership will be even considered unless he can submit to an examination based on at least three years' high school work. It was also determined that no dental college will be recognized by the national association unless it has at least six actual professors.

The resolution that most disturbed the members was that pertaining to the reciprocal relations between the examining boards of the different states. One resolution permits a license to be issued to a dentist of approved character who decides to move his residence to another state, only when he has lived at least five years in the state from which he purposes moving, and then the board of examiners in the original state must recommend the moving dentist to the board of examiners in the state where he intends to practice. After an unfruitful discussion the resolution was referred to a committee composed of Dr. C. Stanley Smith of Cincinnati, Ohio, and Thomas J. Barret of Massachusetts.

### **OFFICERS OF THE F. D. I. AND OF THE EXECUTIVE COUNCIL.**

Charles Godon, president, France; E. Sauvez, secretary-general, France; A. W. Harlan, U. S. A., first vice-president; W. D. Miller,\* second vice-president, Germany; F. Aguilar, treasurer, Spain; George Cunningham, England; E. Forberg, Sweden; J. E. Grevers, Holland; R. B. Weiser, Austria; M. Klingelhoffer, Adjunct, Russia.

### **COMMISSION ON EDUCATION.**

President, Truman W. Brophy; vice-presidents, M. H. Cryer, W. B. Paterson, O. Zsigmondy; secretary, M. Roy; assistant secretaries, F. Martin, J. D. Losada.

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\*E. Hesse, Leipsic, original member.

**COMMISSION ON HYGIENE AND PUBLIC DENTAL SCIENCE.**

President, W. D. Miller; vice-presidents, G. V. I. Brown, G. Cunningham, E. Forberg, N. S. Jenkins, C. Rose; secretaries, R. Heide, E. Sauvez, R. B. Weiser; assistant secretaries, L. C. Bryan, Geo. A. Roussel.

**COMMISSION ON INTERNATIONAL DENTAL PRESS.**

President, E. Forberg; vice-president, A. W. Harlan; secretary, Ed. Papot; assistant secretaries, L. J. Mitchell, B. Platschick, L. Subirana.

The following countries are members of the federation: Austria, Australia, Belgium, Brazil, Canada, Denmark, England, France, Finland, Germany, Holland, Hungary, Italy, Norway, Spain, Switzerland, Sweden, United States of America, etc.

At the afternoon and general session Dr. A. W. Harlan of New York presented a resolution before the session, which was at once unanimously adopted. The resolution was to the effect that a letter be sent by the federation to each of the civilized powers of the world that had no government dentists asking them to appoint a certain number to attend to the injured soldiers and sailors who needed such attention.

During the session of the Commission on Education the following papers were read: "A Resume of the Status of Dental Education in France," by Dr. Charles Godon; "The Necessity of Establishing Libraries in Dental Colleges," by W. E. Boardman of Boston, Mass.; "A Brief Consideration of the Grading of Students in Dental Colleges," Dr. C. N. Johnson of Chicago; "International Dental Education," Dr. H. L. Banzhaf of Milwaukee; "The Development of Dental Education in the West," Dr. A. H. Thompson of Topeka, Kas.; "Education," Dr. R. B. Weiser of Vienna, Austria; "Method of Teaching Operative and Prosthetic Dentistry," Dr. M. Roy of Paris, France; "Note on the Life of Fauchard," Dr. G. Viau. These papers were followed by a discussion of the report of Dr. Weiser on "Public Dental Service in the Army."

Three papers were read before the Commission on Hygiene and Public Dental Service: "Emergency Dentistry and Complete Dentistry for the Poor," by Dr. Charles Godon; "Public Dental Service," by Dr. E. Forberg of Stockholm, Sweden, and another paper with the same title written by the late Dr. J. Franck of Vienna,

Austria, but read by Dr. George Cunningham of Cambridge, England.

Papers were read before the International Dental Press by Doctors Burton Lee Thorpe of St. Louis and J. Endleman of Philadelphia.

It was decided during the general session that the federation would establish a Dental Review and Central Bureau, through which all advances made by the profession would be made known to the public in four languages—English, German, French and Spanish. The following committee was appointed to look to the welfare of this scheme: Doctors J. Endleman of Philadelphia, B. Platschick of Paris and Sulirana of Madrid.

During this session proposed rules and regulations were adopted and provision was made for an executive council of fifty members. The countries represented are those of Europe and America. All first-class powers except Russia shall have five representatives. Russia shall have four. All second-class powers will have two representatives and all third-class powers one representative.

The meetings of the present federation adjourned to give place to the sessions of the council, which opens to-morrow, and which will continue until next Friday, when the new federation will begin its sessions.



**ANALYTICAL SUMMARY OF THE REPORT PRESENTED TO  
THE FOURTH SECTION OF THE CONGRESS AT  
ST. LOUIS, BY DR. E. SAUVEZ.**

**Advantages and Inconveniences of Local and General Anesthesia,**

Struck with the exclusive use of general anesthesia by our American confreres, we have thought to engage their interest by exposing the benefits they might derive from a method which we have mastered in twelve years of practice.

We are the better in a position to speak of this insofar that when, in 1893, we wrote our thesis on "The Best Method of Anesthesia to Employ in Dentistry." We extolled the use of bromure of ethyl for complete anesthesia, and two years of further experiments had not yet eradicated a certain fear concerning the use of cocaine. Since then, statistics covering nearly fifteen thousand cases of injections of cocaine with neither accident nor incident, have made of us a warm partisan of local anesthesia (1).

We should like therefore to plead especially in this Congress in favor of local anesthesia, in which we have absolute confidence, thoroughly persuaded as we are that we speak in the interests of the patients and of the dentists and feeling assured that the operations will be thereby but the better executed.

First, we propose to make a critique of general anesthesia as employed in dentistry.

After having signaled the inconveniences, preliminary, so to say, to the use of all general anesthetics (examination of the heart and lungs, the function of the liver, the presence of one or more acids), we arrive at the main objection to the employment of general anesthesia, the possibility of death.

We divide our arguments into three groups:

1. **Physiological Arguments.**—General anesthetics act by inducing functional arrest in the nervous centers, according to an immutable, hierarchical sequence; in the first place in the tegument, then in the medular, reflex centers, and finally in the bulb; if anesthesia is still further developed, the bulbous centers become paralyzed and death ensues.

2. **Statistical Arguments.**—According to the "Edinburg Medical



Journal" of November, 1903, the number of mortal cases produced by general anesthesia are divided as follows:

(1) Sauvez, Societe Odontologique, Paris, May 5, 1903.

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Chlorure Ethyl .....	1-16,000
Bromure ..	1- 4,000
Ether ..	1-12,000
Chloroform ..	1- 2,000
Protoxyde azote....	Impossible of calculation

However, 13 cases of death due to protoxyde are known (cases of Maurice Perrin, of Magitot, of Watson and of Duchesne).

And we are dealing only with fatal cases. We do not mention the frequent and serious accidents, the blue syncopes from which the patients are only saved by artificial respiration. According to the witty expression of Prof. Reclus, "for an accident to count, it must be fatal."

3. Operating Arguments.—We expose in our memoir the difficulties of operation due to the inertia of the completely anesthetized patient and to the decubus dorsal, or reclining position, in which he is generally placed.

4. Medico-Legal Arguments.—In case of fatal accident, when the matter is brought to court, the judges, who would never question the use of an anesthetic for a serious operation, will often bitterly contest its employment when it is merely the question of the extraction of a tooth.

We lay stress finally in our memoir on the results of general anesthesia. Here, we simply note the cephalgies the nausea, lumbago, the peculiar state of general illness and often the insomnia which may last for several consecutive days. With complete anesthesia of short duration (somnoforme, protoxyde, etc.), a hasty operation becomes necessary and mistakes and accidents may result. We discuss next the advantages attributed to complete anesthesia, among others, that patient does not see himself operated upon, that several extractions can be made in one seance, and that, according to some authors, cicatrization takes place the more rapidly. Of three arguments, we believe that the first two in no wise balance the inconveniences and dangers of which we have spoken, and the last one is at least open to argument. Reclus, who employed cocaine for general surgery, has never observed that cicatrization by first in-

stance was any slower by this method than in the case of general anesthesia.

If we broach now the exposition of dangers and inconveniences of local anesthesia, we can affirm that the first are null (no mortal case observed under the use of twenty-three centigrammes of cocaine and three centigrammes more than suffice for our dental operations) and, as regard the inconveniences, they may be resumed as follows:

1. Risk of illness: At most, slight vertigo in insignificant proportions and only with patient<sup>r</sup> predisposed thereto; at any rate, never serious disorders.

2. In two cases of dental surgery: Extraction of wisdom tooth with trismus, or in complicated operations, such as we define in our memoir, local anesthesia is counter indicated.

3. In two other cases, acute arthritis, or abscess, local anesthesia for the most part merely determines attenuation of the pain. Among the numerous advantages presented by local anesthesia we lay stress notably on time, tranquility, and the several facilities offered by cocaine to the operator to accomplish surgical intervention with leisure and steadiness.

#### Methods of Anesthesia Other Than Cocaine and Refrigeration.

After citing all the substances abandoned as impracticable, for instance, tincture of cannabis indica, strong carbolic acid, orthoforme, etc., we lay stress on the use of electricity as an agent of local anesthesia.

Electricity has been employed in two ways:

*A* A current of high frequency directed towards the level of a tooth during a variable period previous to extraction (Regner and Didsbury).

*B* The introduction of medicinal substances (cocaine) within the tissues, by the aid of electricity. This is the cataphoresis based on the theory of Faraday's ions (Pont).

After exposing the operating manual of these means of local anesthesia, we develop its critique and show that electricity, as an agent of anesthesia, is not to be depended upon, presenting many inconveniences and difficulties.

We are thus forced to bring forward cocaine, or its derivatives, which, in injections, seem to give practical results superior to all other methods of local anesthesia known at present.

Cocaine—Physiological Properties—Local Anesthesia, Toxicity—  
Derivatives—Tropacocaine—Eucaïne—Phenate—Citrate.

After the exposition of the history and the chemical properties of cocaine, we approach in this chapter the physiological properties of this alcaloid.

Practically, cocaine is a local anesthetic; from a physiological standpoint, it is a general as well as a local anesthetic. The complete anesthesia attributed to cocaine has been much discussed. The research on this subject by Mosso and Albertoni have caused cocaine to be recognized as possessing the characteristics of a general anesthetic, because of its universal and temporary action on the cells (definition of Claude Bernard), Charpentier de Manez assures us that this is a true characteristic of cocaine, as far as germination and fermentation are concerned. Injected into animals in physiological doses, cocaine determines in them an extreme muscular excitation, followed by an insensibility exclusively of the surface the deeper sensibility being preserved.

It is this fact that caused Laffont and Arloing to consider cocaine as a sensitive curare which acted exclusively on the sensitive nerve extremities, just as this last alcaloid affects the motor extremities. This theory of a sensitive curare is combated by Mosso; an injection of cocaine in the body of a nerve brings about anesthesia of the adjacent territory dependent on that nerve. Which fact induced Feinberg, Oberst, Pernice, Mans and Reclus to create regional anesthesia, which furthermore permitted the conception and execution of rachicocainisation (Bier) in which the action of the cocaine is directed to the rachidian roots.

One of the most remarkable of the properties of cocaine is its vasoconstrictive action. We emphasize this fact and expose its divers consequences. Let us here only cite the elevation of the blood pressure. We dwell as well on its action on the centers of thermic regulation (cocaine heightens the temperature, Richet) and on the ocular apparatus (Mydriase).

We now approach the dangers which the use of cocaine might offer. In the first place, there is syncope. We show its rarity and explain how easy it is to avoid it by employing the right dose on the reclining patient. The other phenomena observed, sometimes subsequent even to correct injections of cocaine, are slight and insignificant; slight tingling (pins and needles) of the extremities and greater loquacity. There is really nothing in local anesthesia by cocaine approaching the sudden scares which accompany the use of chloroform. Statistics bear us out in this statement. In 7,000 cases

of anesthesia by cocaine practiced by Reclus, he has not noted the slightest trouble in the physiological equilibrium. We, ourself, with a minimum of 15,000 injections, cannot register one accident not even an incident, due to the use of cocaine. We are therefore in a position to affirm that this is the most inoffensive of all the anesthetics and that it exposes one to no surprise whatsoever.

With the aim of avoiding the so-called inconveniences attributed to cocaine, its derivatives or congenerate substances have been experimented with, which subject is treated at length in our thesis. We will here limit ourselves, with citing the conclusions we arrived at concerning tropacocaine and eucaine.

Tropacocaine presents an equal degree of toxicity while its anesthetic action appears less profound than that of cocaine.

Eucaine is a vaso-dilator, its injection is painful and it presents a feebler power of anesthesia and of a shorter period of duration than cocaine.

Phenate of cocaine, insoluble in water, and employed therefore dissolved in oil or liquid vaseline, produces nodules which are long in disappearing.

Therefore the use of chlorhydrate of cocaine appears to us to carry with it all the advantages claimed for the preparations compared to it as much from the point of view of the anesthesia produced as by the percentage of possible accidents.

#### Medium Other Than Water.

The researches that have been made on this point depart from the principle that an injection made in the tissues will be the less dangerous in proportion as its diffusibility is lessened; that is to say, that it should enter as tardily and slowly as possible into the circulatory torrent.

It was sought therefore to use as vehicle, for the introduction of cocaine, substances such as oil, vaseline and cacao-butter. After explaining their mode of use, we arrive at the following conclusions:

Such means, other than water, used in the transmission of cocaine, have the disadvantage of determining, by their presence in the tissues, all the accidents attributable to foreign bodies. They sensibly retard cicatrization and many of them produce sphacele. From which we conclude that the use of vehicles other than distilled water appear to us to possess only disadvantages, with no profit whatsoever.

**DR. CORYDON PALMER.\***

Dr. Corydon Palmer, who is believed to be the oldest practicing dentist in the world, was born in Warren, Ohio, in 1820. He belongs to an ancient English family who emigrated to this country in 1800. In the early part of the last century there were no colleges of dentistry and the practice was taken up by blacksmiths, wheelwrights and tinkers, and any knowledge gained by such practice was guarded with the greatest secrecy. Dr. Palmer began life as a jeweler's apprentice, and when he turned his attention to the practice of dentistry, his skill enabled him to invent and manufacture dental tools which were far superior to anything of the sort then used, and which were afterwards used as models by the early manufacturers. He was the inventor of the first set of instruments used for filling with cohesive gold. At the request of the S. S. White Dental Manufacturing Co. he years ago examined in detail and perfected every instrument and pattern. This duty was faithfully performed and the dental profession owes a debt of gratitude to Dr. Palmer for this and for many inventions. Though now in his 85th year, Dr. Palmer is still practicing dentistry and manifests a lively interest in the newer methods and inventions shown at the Fourth International Dental Congress. He has two sons practicing dentistry in New York, who stand very high in the profession.

He has long been a member of the Board of Trustees in the Ohio Dental College at Cincinnati.

At the recent meeting of the Fourth International Dental Congress a rising vote of thanks was tendered Dr. Palmer for attending the meeting.

**PSI OMEGA ELECTION.**

The Psi Omega dental fraternity elected the following officers of the Grand Chapter at their meeting in St. Louis: Doctor H. Sting of Tiffin, O., supreme grand master; Doctor J. P. Nyce, Philadelphia, Pa., supreme junior master; Doctor J. P. Morrison, Cincinnati, O., secretary; Doctor William Backus, Buffalo, N. Y., corresponding secretary; Doctor F. Starnge, St. Louis, inside guardian.

\*See Frontispiece.

# REPORTS OF MEETINGS

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## SOCIETY ANNOUNCEMENTS

### **THE NORTHERN ILLINOIS DENTAL SOCIETY.**

The Northern Illinois Dental Society will hold its seventeenth annual meeting at Sterling, Wednesday and Thursday, Oct. 12 and 13, 1904. Take due notice and govern yourselves accordingly. By order of president, A. W. McCandless. A. M. HARRISON,  
Secretary.

### **INTERNATIONAL DENTAL FEDERATION.**

The next meeting of the F. D. I. will be in Berlin, Germany, and will be held next year. By invitation from the Central Verein vor Sitzung de Deutschland; the next International Dental Congress will be held in Berlin, Germany, in 1909, which will be the fiftieth anniversary of the above-named society.

### **NEBRASKA STATE BOARD.**

The State Board of Dental Examiners was reorganized Aug. 14 at a meeting held at the Lindell hotel and the following officers were elected: Dr. Louis N. Wonte of Lincoln, president and treasurer; Dr. W. N. Dorward of Omaha, vice-president; Dr. V. A. Meese of Auburn, secretary. The board will meet in Lincoln Sept. 1.

### **NEW JERSEY STATE BOARD OF REGISTRATION.**

The New Jersey State Board of Registration and Examination in dentistry will hold their semi-annual meeting in the theoretical branches in the assembly chamber at the State House, Trenton, N. J., on the 18th, 19th and 20th of October, 1904. Practical prosthetic work to be done in the office of Dr. A. Irwin, 425 Cooper street, Camden, N. J., and practical operative work to be done in the office of Dr. C. S. Stockton, 7 Central avenue, Newark, N. J. Work to be done on dates assigned by the examiner in those branches.

All application must be in the hands of the secretary by the 15th of October.

CHARLES A. MEEKER, D. D. S.,

29 Fulton street, Newark, N. J.

**DENTISTS TO HAVE NATIONAL DIPLOMA,**

The endorsement of a comprehensive plan for granting a Dominion diploma in dentistry, whereby dentists could qualify for practice in any province of Canada was a crowning feature of an entirely successful biennial convention of the Canadian Dental Association before final adjournment Sept. 8.

The scheme as proposed by the tentative Dominion Council and ratified by the association contemplates the granting of certificates on passing an examination prescribed by the council, and which will be recognized by all the provincial incorporated dental associations which become parties to the agreement. British Columbia and Quebec are the only two provinces that have not yet consented, through their representatives, to the new diploma, which is to become operative on Jan. 1 next, provided the necessary provincial legislation is obtained.

According to the conditions submitted by the council, dentists who have been in practice for 10 years prior to the date of their application, and who hold certificates of qualification from recognized dental colleges in Canada, will be granted the national certificate on payment of a fee. Dentists who have not been 10 years in practice must pass the examination to be prescribed by the Dominion Council. Candidates applying for examination must have a matriculation standing in arts, which matriculation standing shall not be lower than a three years' course in a High school, with Latin as a compulsory subject.

All candidates for the diploma must have put in at least four years in dental study and have a recognized provincial diploma. Diplomas from colleges in other countries will not be recognized unless supplemented by diplomas secured in regular course from a recognized Canadian college.

The Dominion Council is to consist of two representatives from each agreeing province, who are to be elected by incorporated dental bodies, and whose term of office shall be four years.

Dr. S. W. McInnes, of Brandon, Man., in commenting on the new national diploma, declared that it would put the dental profession in Canada in the very first rank, as compared with all other countries in regard to uniform and high standards of qualification.

The report of the Committee on Army Dental Corps was presented by Dr. Brown, of Ottawa. He told of the efforts made at Ottawa to secure from the Minister of Militia permission to organ-

ize an independent Dental Corps. This permission had, however, been refused, but last July the Minister had consented to the appointment of eighteen dental officers, who shall receive the same pay as medical officers holding the same rank. No appointments are to be made till next year. The committee was continued in office with authority to complete details of organization of the new corps.

Officers were elected as follows: President, Dr. Eudore Dubeau, Montreal; first vice president, Dr. S. W. McInnes, Brandon; treasurer, Dr. W. G. L. Spalding, Toronto; secretary, Dr. C. F. Morrison, Montreal; registrar, Dr. G. K. Thomson, Halifax.

Drs. Brown, Nolin and Oliver were added to the resident committee in Montreal, where the next biennial meeting is to be held in 1906.

The Executive Committee was elected as follows: T. W. Ryan, Nova Scotia; Frank A. Godsoe, New Brunswick; F. A. Stevenson, Quebec; G. E. Hanna, Ontario; W. F. Taylor, Manitoba; W. D. Cowan, North-West Territories; F. A. Lefurgey, Prince Edward Island.

#### **NORTHERN IOWA DENTAL SOCIETY.**

At the annual meeting of the Northern Iowa Dental Society at Waterloo July 28 the following officers were elected for the coming year: President, A. W. Beach, of Sheldon; vice-president, C. L. Topliff, of Decorah; secretary, F. C. Blanchard, of Waterloo; treasurer, C. N. Booth, of Cedar Rapids. The meeting next year will be at Decorah.

#### **PENN. STATE DENTAL SOCIETY.**

The state dentists in convention at Wilkesbarre, July 14, elected the following officers: President, I. N. Broomel, Philadelphia; vice-president, H. W. Arthur, Pittsburg; second vice-president, J. B. Lippincott, Philadelphia; secretary, George W. Cupid, Philadelphia; corresponding secretary, V. S. Jones, Bethlehem; treasurer, R. H. D. Swing, Philadelphia. H. E. Friesell, of Pittsburg, offered a resolution which was adopted, condemning efforts to shorten dental courses from four to three years.

#### **NATIONAL DENTAL ASSOCIATION.**

The National Dental Association met September 2, at 9:30 o'clock, for election of officers and the following selections were made:



W. E. Boardman, president.

J. I. Hart, New York, N. Y., vice-president from the East.

R. K. Luckie, Holly Springs, Miss., vice-president from the South.

Wm. Conrad, St. Louis, vice-president from the West.

A. H. Peck, Chicago, recording secretary (re-elected).

Dr. Butler, corresponding secretary.

V. E. Turner, Raleigh, N. C., treasurer.

Following is the executive council:

Chas. McManus, Hartford, Conn.

B. Holly Smith, Baltimore.

M. F. Finly, Washington, D. C.

H. J. Burkhart, Batavia, N. Y.

J. G. Crawford, Nashville, Tenn.

The members of the executive committee were authorized to hold over for one year.

The next meeting will be held in Buffalo the first Tuesday in August, 1905.

At the meeting held at 5:30 o'clock the question in dispute with reference to application of a member who had been expelled from his local society was denied.

The new president announced that he would appoint a committee on necrology.

### **THE ELECTION OF OFFICERS OF INTERSTATE DENTAL FRATERNITY.**

Vice-Presidents—New States members:

W. A. Campbell, Suffolk, Va., Vice-President for Virginia.

S. W. Wherry, Vice-President for Utah.

R. Ottolengui, Vice-President for New York.

J. Brentzinger, Vice-President for Oklahoma.

Jules Saarazin, Vice-President for Louisiana.

General Secretary of the United States, R. M. Sanger, East Orange, N. J.

Chas. A. Meeker, Treasurer, Newark, N. J.

Next annual meeting to be held where the annual association meets.

### **THE FRATERNITY OF DELTA SIGMA DELTA.**

The Fraternity of Delta Sigma Delta held its annual meeting Wednesday, August 31, at St. Louis, and elected Dr. R. H. D. Swing of Philadelphia as Supreme Grand Master and Dr. J. D. Pat-

ters on of Kansas City as Supreme Worthy Master. In the evening several new and distinguished members were initiated, some from foreign lands.

Delta Sigma Delta is worldwide in its membership and at the meeting and banquet, which followed in the evening, where some two hundred sat down, were representatives from nearly every quarter of the globe. The twentieth anniversary of this fraternity will long be remembered as the largest and most enthusiastic in its history.

### **NORTHERN INDIANA DENTAL SOCIETY.**

The sixteenth annual meeting of the Northern Indiana Dental Society will be held Oct. 18 and 19 at Huntington, Indiana.

It is expected that we will have the largest attendance of any meeting ever held in this section of the country and you cannot afford to miss hearing such essayists as Drs. G. V. Black, Hart J. Goslee, F. E. Roach, George E. Hunt, Wm. T. Reeves, E. X. Jones, J. Q. Byram, G. E. Johnson, F. R. Henshaw, F. M. Bozer, Lavinia B. McCollum, C. G. Keehn, and many others, that have consented to appear on the program, besides a very attractive list of clinics demonstrating all of the newest and most valuable things in practice.

All the leading manufacturers have signified their intention of making an exhibit of their products.

Every up-to-date dentist will be present. Are you coming?

Special social features for Tuesday evening.

Remember the date.

OTTO U. KING,  
Secretary.

### **FOURTH INTERNATIONAL DENTAL CONGRESS.**

The Fourth International Dental Congress selected five members to constitute their quota of members to the International Federation for five years, as follows:

B. Holly Smith, Wm. Carr, A. W. Harlan, B. L. Thorp and E. C. Kirk.

### **ILLINOIS STATE BOARD OF DENTAL EXAMINERS.**

The regular annual meeting of the Illinois State Board of Dental Examiners, to examine applicants for license to practice dentistry in this state, will be held in Chicago, October 13, 14, 15, 1904. Under an opinion of the attorney-general the following are eligible to take

the examination before the board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to moving into the state, and anyone who failed to register in this state at the time the law went into effect, which was in 1881." Candidates must furnish their own patients, and come provided with the necessary instruments, rubber-dam and gold to perform practical operations and such other work as is deemed advisable by the board. Those desiring to take the examination should matriculate with the secretary at least ten days before the date of meeting. The examination fee is \$10.00. Any further information can be obtained by addressing the secretary.

J. G. REID, Secretary,  
1204 Trude Bldg., Chicago, Ill.

#### **NORTHWESTERN MICHIGAN DENTAL ASSOCIATION.**

The Northwestern Michigan Dental Association was organized at Traverse City Sept. 7, the membership including dentists in good standing all through that part of the state. Officers elected: Dr. C. C. Bowen, Cadillac, president; Dr. P. H. Penhallegon, Traverse City, vice-president; Dr. C. A. Burbridge, Traverse City, secretary; Dr. Frank Graham, Harbor Springs, treasurer.

#### **WISCONSIN STATE DENTAL SOCIETY.**

At the thirty-fourth annual meeting of the Wisconsin State Dental Society held at Manitowoc, July 19-21, 1904, the following officers were elected for the ensuing year:

President—H. T. Sackett, Fond du Lac.

First Vice-President—E. C. Oviatt, Columbus.

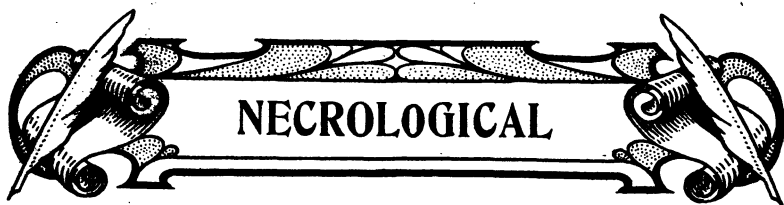
Second Vice-President—P. B. Wright, Milwaukee.

Secretary—W. H. Mueller, Madison.

Treasurer—Adolph Gropper, Milwaukee.

The next meeting will be held at Oshkosh in July, 1905.

W. H. MUELLER,  
Secretary, Madison, Wis.



**Dr. Lawrence Ware Bristol.**

Dr. Lawrence Ware Bristol, the oldest practicing dentist in Lockport, N. Y., and perhaps the oldest in the state, died Aug. 11, at his home on Niagara street, aged 88 years. He was active to the time of his death.

Dr. Bristol was probably one of the oldest Odd Fellows in the state, having joined that order in 1844. For years he was treasurer of local Cataract lodge.

He was married in 1845 to Miss Lavina Harrington, who died in 1850, leaving one daughter, Mrs. Charles Sowter. In 1852 he was married to Sophronio Sadlier, of whom three children were born. She died in 1874. Two children survive.

Dr. Bristol never wore an overcoat. His only protection from the cold of winter on his daily walks, which he never missed, being a light shoulder cape, the wearing of which made him a quaint looking character in recent years.

**Dr. Stephen G. Stephen.**

Stephen G. Stephen, D. D. S., one of the best known dentists of Boston, Mass., died suddenly in that city Sept. 5. Death was due to heart complications. He leaves a widow and three sisters, the latter residing in California.

Dr. Stevens was born in Boston and soon gained prominence in his chosen profession. For many years he practised at 2 Commonwealth avenue. He was formerly a trustee in the Boston Dental College, which subsequently became a part of Tufts medical department. He was a member of the Dental Improvement Society, the Boston Academy of Dental Science and was the inventor of various dental appliances. In the I. O. O. F. he held almost every office. He was a veteran of the civil war.

**Mrs. Sarah Jane White.**

Mrs. Sarah Jane White of 1622 Arch street, Philadelphia, in her 80th year, at Rye, N. Y., where she had been visiting her

daughter, Mrs. James S. McCulloh. Mrs. White was born in Wilmington, Del., Aug. 29, 1824, her maiden name being Carey, and was married in 1846 to the late Samuel S. White, founder of the business which has since been carried on by his sons under the name of the S. S. White Dental Manufacturing Company. Mrs. White is survived by two sons—J. Clarence White of Germantown and Samuel S. White of Bryn Mawr—and two daughters—Mrs. Henry M. Warren of Devon and Mrs. McCulloh of Rye. Another daughter, Mrs. Granville B. Haines, died a few years ago.

**Dr. Leo. H. DeLange.**

Dr. Leo H. Delange, the first mayor of Bordentown, died at his summer home, 306 Third avenue, Asbury Park, July 10.

The deceased was the oldest retired dentist in that state, and during many years of practice in his profession attained a widespread reputation and was one of the founders of the New Jersey State Association.

Dr. Delange was one of a family distinguished in literature and art.

**Dr. John S. Coman.**

Dr. John S. Coman, one of the most prominent physicians and dentists in Harlem, N. Y., and a graduate of the University of New York, has sacrificed his life at Navesink Highlands in attempting to save a woman who, while bathing in Shrewsbury river, stepped into a deep hole. He brought the woman to the surface after diving three times. The effort exhausted him, and he sank while another bather took the woman to shore.

**Dr. Ferdinand Hasbrouck.**

Dr. Ferdinand Hasbrouck, a dentist, died at his home, 62 W. 38th street, New York, in his 60th year. He was one of the first to use anaesthetics in the extraction of teeth. Dr. Hasbrouck was born in Stoneridge, N. Y.

**Dr. Joseph D. Riggs,**

Dr. Joseph D. Riggs, one of the best known dentists in New Haven, Conn., died Sept. 9 at his residence in that city.

Dr. Riggs for many years had an office in the White building, where he carried on a dental practice. He then removed his office to his home, where he continued to practice his profession.

He was ill about two weeks. A wife and one daughter are left to mourn. He was 72 years of age.

**Dr. John W. Rhodenbaugh.**

Dr. John W. Rhodenbaugh of Allegheny died at Butler, Aug. 17, from neuralgia of the heart. Dr. Rhodenbaugh was born and raised in Allegheny, Pa. He practiced dentistry there until last year. Dr. Rhodenbaugh was married two years ago. He was 32 years old.

**Dr. J. S. McLean,**

Dr. J. S. McLean, dentist at Edmonton, was drowned at Corking Lake, Alberta, Aug. 23, while boating with three other persons. The boat capsized and Dr. McLean alone failed to reach the shore.

**Dr. M. S. Nisbit.**

Dr. M. S. Nisbet of Sioux City, Iowa, died Aug. 16 suddenly at that place. He had been operated on for hernia and was apparently recovering.

**Dr. C. P. Artman.**

Dr. C. P. Artman, a pioneer dentist of Waterloo, Iowa, died Sept. 1 in that city.

**Dr. L. W. Dancy.**

Dr. L. W. Dancy, a dentist of the Arkansas side, Texarkana, died at his home Sept. 4 of typhoid fever.



## MISCELLANEOUS

### **After-Pain from Extracting.**

May be prevented by administering one anti-kamnia and codeine tablet before operating and one after.—*Register*.

### **The Cuspid Eminence.**

In 95 per cent of cases plates can, and should be worn higher over the cuspid eminence and the gum fullest, than elsewhere, and as high as possible all around.—*Dr. Haskell*.

### **To Remove Oxid from German Silver Regulating Appliances.**

Hydrochloric acid, cold, full strength, may be used to remove oxid from German silver regulating appliances.—*Dr. V. E. Barnes, Dental Summary*.

### **Quick Pickle.**

Place the piece in a small glass dish and nearly cover with hot water; pour in an equal quantity of pure sulphuric acid, and by that time the piece will be clean.—*Dr. Oliver Martin, Dental Review*.

### **Protection of Cement While Hardening.**

When moisture can be excluded but a short time, press a piece of tin-foil over the fresh cement; it will adhere and protect the cement until hard.—*Dental Review*.

### **Grinding Teeth**

In grinding porcelain facing for crown and bridge work, grind the porcelain to a well defined angle with the pins, which equalizes the strain, and gives better margins.—*Dr. E. W. Bridgeman, Forum*.

### **To Do Away with the Leather Washer in Hypodermic Syringes.**

Wind dental floss on the threaded portion of the barrel and adjust the needle. This makes a tight joint, and much more cleanly.—*Dr. F. Haase, Forum*.

### **Impression for Porcelain Inlay.**

In taking a cavity impression I use albolin or some other lubricant, and take my impression with archite. It sets very quickly and is very hard.—*Dental Summary*.

**Local Antiseptic that will Keep Indefinitely.**

- R. Cocaine, grs. v.  
 Pasturine, ozs. vii.  
 Glycerine, ozs. j.—*E. J. Quattlebaum.*

**Clearing House for Dental Journals.**

Dr. Arthur D. Black, of the Northwestern, Chicago, has organized a Dental Journal Clearing House, through which members and others may complete their files. Write him what you have to give and what you wish in return.—*Exchange.*

**Convenient Use for the Rubber Dam.**

A strip of rubber dam two inches wide and four inches long—or as long as necessary for the case—placed over a heavy moustache and tightened up with the Cogswell holder will give great comfort to the operator while working on the posterior lower teeth.—*Dr. Oliver Martin, Review.*

**Setting Inlays.**

Harvard white cement should be used in setting all inlays. By mixing a nearly equal amount of water with the fluid it will set perfectly in ten minutes. For cavities in the anterior teeth it is not necessary to use the dam. A piece of cottonoid under the lip and another piece for the patient to bite on will give you all the time necessary for the cement to harden.—*Dr. A. E. Peck, Dental Summary.*

**Removal of Matrix.**

Always peel matrix from margins toward center, and as soon as it has started hold in water for a moment, which facilitates removal. Small attached pieces are removed with fine burs or excavators. Though a few advise not to groove nor to remove gloss from bottom of inlay, the majority advocate cutting grooves and dove-tails around and across body of inlay, which aids the adhesion of cement. For additional retention in low-fusing bodies I would recommend the following plan—file copper wire into small and not too deep square or inverted-cone shaped pieces. Place one or more as needed in bottom of matrix and fuse body over them. When finished they can be removed by boiling in nitric acid.—*Dr. G. B. Mitchell, Hints*

**Fracture of the Maxilla in Tooth Extraction.**

This is most liable in mouths that have had suppurative conditions about the teeth, for in such cases ankylosis of the tooth to the bone usually follows if the pathological condition has extended down in the socket for any distance.—*S. L. McCurdy, Dental Summary.*



**Filling Root Canals.**

The filling of root canals where semi-liquid preparations are used can be more easily and successfully accomplished by rotating the smooth broach in the canal, instead of pushing it. Repeat until the canal is pretty thoroughly filled, then with direct pressure complete operation.—*Dr. A. P. Burkhart, Forum.*

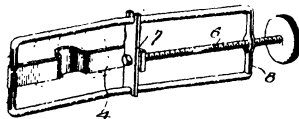
**Narcotile.**

As a general anaesthetic in dental practice, narcotile, a constant and unchanging chemical product, offers the advantages of being rapidly assimilated by the respiratory organs and quickly eliminated from the body, with freedom from bad after-effects. Its general effects are similar to those of sulphuric ether, but more rapid than chloroform or nitrous oxid. During complete anaesthesia the action of the heart remains unchanged. Cyanosis never occurs and rigidity is not at all prominent. Frequently there is no appearance of anaesthesia, with complete absence of pain.—*Dr. F. A. Weld, Dental Digest.*

**Platinum Foil in the Laboratory.**

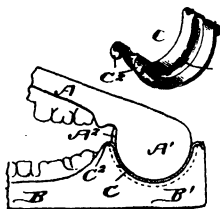
First, in those cases where it is necessary to make the addition of a tooth to a metal plate the foil does away with the necessity of swaging a small piece of plate. Second, for repairing cracks in a metal plate it is again invaluable. Three, in putting a new tooth on to an old backing, especially in those cases where the holes for the pins of the tooth have been made too large or too far apart. Fourth, used for the purpose of backing shallow saddleback bicuspid and molars to be used in close bite for plate work. Fifth, used for the purpose of making a porcelain-faced crown. After the metal crown is swaged, cut out a piece with a fret-saw and fit a tooth backed with platinum foil into position; it can then be soldered from underneath, making a cement-tight crown.—*D. E. Caush, Brit. Dent. Jour.*

# DENTAL PATENTS



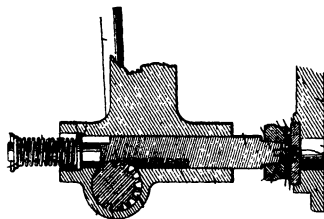
766,018. Dental clamp. Houston M. Carroll, San Antonio, Tex. Filed July 18, 1903. Serial No. 166,158. (No model.)

Claim.—1. In a device of the class specified a flexible clamping strip, an open integral frame closed on all sides and serving to support the strip, and means carried by the frame for exerting endwise strain on the strip.



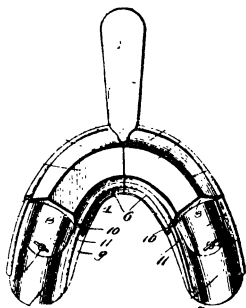
766,235. Dental articulator. Arthur H. Fleming, Louisburg, N. C. Filed Nov. 21, 1903. Serial No. 182,156. (No model.)

Claim.—1. An articulating plate curved upon the arc of a circle and adapted to be placed between the upper and lower heel pieces during the formation, as set forth.



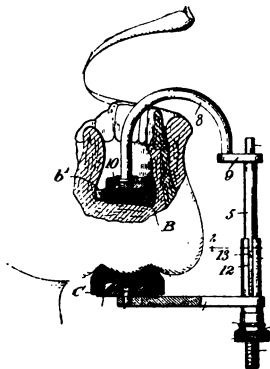
766,693. Dental disk cutter. James A. Hallett, Des Moines, Iowa. Filed June 1, 1903. Serial No. 159,427. (No model.)

Claim.—1. The combination of a member, comprising a punch and a disk cutter surrounding the punch, a member comprising a flat working face susceptible of coating with disk cutters of different diameters and having a central opening to admit the punch and means for moving one member toward the other.



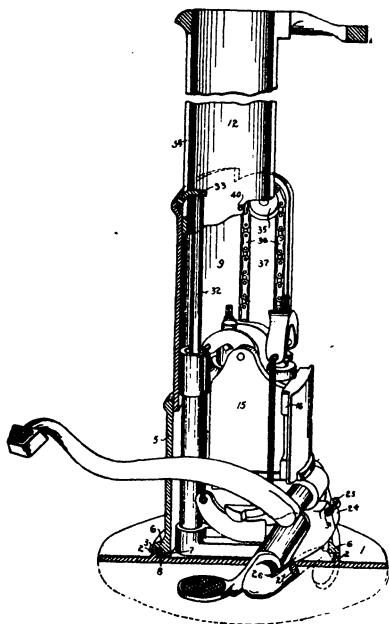
765,919. Dental impression cup. Charles L. Gibbs, Philadelphia, Pa. Filed Oct. 1, 1903. Serial No. 175,372. (No model.)

Claim.—1. A dental impression cup having an offset portion provided with a slot or opening, and means adjustable longitudinally on said offset portion for varying the length of said slot or opening, substantially as described.



765,537. Dental duct appliance. Frank P. Abbott, New York, N. Y. Filed Nov. 14, 1903. Serial No. 181,177. (No model.)

Claim.—1. A dental appliance consisting of a threaded stem, a yoke connected thereto, a mouth pad supported by the yoke, an arm slidable on the stem, a jaw rest on said arm, and a nut having threaded engagement with the stem and adapted to adjust the arm on said stem.



766,591. Dental chair. Frank E. Case, Canton, Ohio. Original application filed Aug. 7, 1903, Serial No. 168,555. Divided and this application filed March 28, 1904. Serial No. 200,247. (No model.)

Claim.—1. In a chair, a floor plate having an annular flange with an internal groove thereon, a base having an external annular flange resting on the floor plate flange with part of one side of the base extended below the external flange, an annular tongue on the depending part of the base adapted to operate in the floor plate groove, and a brake dog pivoted on the opposite side of the base having a toe on its free end adapted to be swung to bind against the floor plate tongue.

## PERSONAL AND GENERAL

**Robbed** —Dr. J. R. Fouser of Joliet suffered considerable loss through sneak thieves recently.

**Office Robbed.** —The dental office of Dr. L. J. Andrews at Rockford, Ill., was robbed Sept. 8th; loss about \$50.00.

**Bankrupt.** —W. E. Day, of Peoria, Ill., has filed a voluntary petition in bankruptcy; liabilities \$20,510.23; assets \$429.20.

**Burglars in Iowa.** —Dr. L. B. Lockwood's dental office at Nashua, Iowa, was robbed recently and about \$100 in gold taken. The burglars entered the office with a key.

**Married** —At Wheeling, W. Va., Dr. Chas. Harrington to Miss Edna Hart. The affair was a pink and white wedding. The groom is a dentist and is engaged in practice at above city.

**Poisoned.** —Dr. S. W. Whitney, dentist at Albany, N. Y., was reported critically ill as a result of ptomaine poisoning. It is presumed Dr. Whitney was effected from eating chicken or clams.

**Sues Traction Company.** —D. W. Clancey, dentist, sued the Cincinnati Traction Company July 18 for \$10,000 damages for personal injuries sustained December 5, 1903, when his buggy was struck by a traction car.

**Married.** —Ray A. English, dentist of Clay City, Ind., but formerly of Worthington, and Miss Nelle Slinkard, of Tanner, Ind., were married at the home of the bride's parents July 31. They will reside in Clay City.

**Wedding at Athens.** —Dr. Joseph Fulton of Athens, Ill., was married to Miss Mabel Wood at the home of the bride in Cairo, Mich, Aug. 24th. The wedding was a quiet one, only relatives of the contracting parties being present. The groom is a dentist.

**Bleeds to Death** —William N. Middlebrook, assistant treasurer of the City Savings Bank at Bridgeport, Conn., is dead as the result of a hemorrhage he suffered following the extraction of a tooth. Despite the efforts of physicians, the flow of blood could not be stopped.

**Swigart-Rising.** — The wedding of Dr. Geo. Swigart of Watsonville, Cal., to Miss Carrie A. Rising occurred at the home of the bride in Ottawa, Ill., Aug. 10th. The groom is a graduate of the dental department of the Northwestern University and is practicing at Watsonville, Cal.

**It Was Abort Time.**—The following notice signed by ten dentists of Marion, Ind., appeared recently in the local paper:

The undersigned dentists of Marion have signed the agreement to discontinue the use of trading stamps or enter into the use of them in the future:

**Eloped.**—Dr. James Saddler of Lagrange, Ky., and Miss Charlotte Starke of Trimble County, Ky., eloped to Jeffersonville and were united in marriage at the Falls City Hotel by Magistrate B. T. Nixon. The bride will be nineteen years old next Sunday, and the groom is twenty-four. He is a dentist at Lagrange.

**Dental College in Trouble.**—A suit against the North Pacific Dental College at Portland, Oregon, and Dr. John Welch, president, and Dr. Herbert C. Miller, secretary, for an accounting, has been filed in the State Circuit Court by Dr. H. P. O'Connor, the vice-president, who makes sensational charges in his complaint.

**Teeth Strangled Her.**—In terror lest a runaway horse might run over her son and herself on their way to Coney Island, Mrs. Mary Murphy, of Brooklyn, screamed until her false teeth became loosened and dropped into her throat, causing her to strangle to death. She was the wife of a saloonkeeper, in No. 77 Fulton street.

**Army Dentist Weds.**—The wedding of Miss Elizabeth L. Lugg, daughter of Mr. and Mrs. J. H. Lugg of Berkeley, Cal., and Dr. Samuel W. Hussey, dental surgeon, U. S. A., took place at the post chapel, Fort Snelling, on Thursday, Sept. 15th. Chaplain Dallam of the Twenty-eighth Infantry read the service. After the ceremony a reception was held in the post hall.

**Toothsome English**—The following advertisement of a Japanese dentist in an English newspaper is an example of what may be perpetrated in the English language:

"Our tooth is a very important organ for human life and countenance, as you know, therefore where it is attacked by disease or injury artificial tooth is very useful. I am engage to the Dentistry, and I will make your purpose."

**Additions of Faculty to O. M. U.**—At a meeting of the faculty of the Ohio Medical University, Sept. 8th, the following were added to the teachers' list:

Dr. Semans was elected to the chair of clinical dentistry. Dr. Kari Brashear was elected to operative technics, and Dr. A. W. Newell was chosen a clinical demonstrator. The dean of the college, Dr. L. P. Bethel, presided at the meeting.

**American Dentist Weds in London.**—St. George's, Hanover square, London, that famous church which has been the scene of so many notable weddings, was chosen by a young Chicago couple on August 29 for their marriage, which was celebrated in the presence of a handful of friends. The bride is a popular south side girl, Helen Winifred Proctor, daughter of Mrs. Annette Proctor, 3238 Groveland avenue, and the groom a well known dentist, Dr. Arthur Newton Davis.

**Married a Chinese Dentist.**—Miss Alice Georgianna Murrie, daughter of Mrs. Elizabeth Murrie, was married to Tang Yawn Fond of Boston at 691 Washington street, Dorchester, Aug. 24th.

The bride is 23 years old, talented and attractive. She has been very prominent in church work. The groom is a dentist at 32 Harrison avenue. The beginning of the romance was at a church entertainment, where Dr. Tang sang and Miss Murrie played his accompaniment.

**Dr. Dittmar a Benedict.**—The marriage of Dr. G. W. Dittmar of Apple River and Miss Agnes Dooling of Galena took place Sept. 7 at high noon at the home of the bride's parents in Galena, Rev. J. E. Shannahan officiating. Only the immediate relatives and a few of the closest personal friends witnessed the ceremony. Dr. Dittmar is demonstrator at the Illinois College and has a host of friends and well wishers. THE AMERICAN DENTAL JOURNAL joins with them in wishing him and his bride many happy years together.

**Married.**—Dr. P. R. Feigel, a Louisville, Ky., dentist, and Miss Minnie Neuner were married July 11. The wedding was an informal one, only the immediate family being invited.

The mysterious illness of George Bauer, of La Crosse, Wis., who for several days has been unconscious and at the point of death from strangulation, has been cleared up. It was caused by his swallowing his artificial teeth.

Bauer was taken violently ill and became unconscious before being able to tell the family anything about his sickness. His son noticed that a plate and several false teeth were missing and immediately communicated the fact to the physician.

**Decision in Dental Practice Case.**—Judge Hanford of the Federal Court at Seattle has declined to grant a writ of habeas corpus in the case of the State versus Dr. Littooy, a dentist who has been three times convicted of practicing dentistry without having complied with the state law.

The court holds that he can see no reason why he should interfere with the workings of the state courts in this case. A large number of convictions have been secured against dentists who were charged with practicing without having complied with the law, and the outcome of this petition for a writ of habeas corpus was watched with considerable interest.

In case the decision had been in favor of Dr. Littooy each of the others who have been convicted expected to file a similar petition.

**Bogus Certificates.**—New Hampshire dentists are stirred over the report that the present state board of dentistry, of which Dr. F. H. Brown is a member, has taken active steps to recover some thirty-two certificates held by persons in practice throughout the state, which it is alleged were illegally issued or issued without the required examination under the New Hampshire law.

The present board held a meeting following the recent examination of candidates for admission to practice dentistry, at which it was decided to

take such steps as are deemed necessary to gain possession of these certificates said to have been given out without authority.

This move is the result of an investigation begun several weeks ago, when two dentists of Newport were arraigned in court, charged with practicing without the proper license.

**Poor Old England.**—Not all the Britons have surrendered to the sanitary and hygienic fads of our times. A noble little band in Folkestone, Eng., stands out resolutely against tooth brushes. It refuses to yield to the subtle influences that are refining the Britishers into a race of weaklings. At a meeting of a board of guardians of children's cottage homes a member of the board had the temerity to advocate the purchase of tooth brushes for the children under their care. He even went so far as to declare that tooth brushes were as necessary as soap and water.

The motion to supply tooth brushes was vigorously opposed. The mayor of the town attacked the idea with great vehemence, declaring that the stamina of Englishmen was being ruined by such fads. He ventured the opinion that many of those present at the board meeting had not used tooth brushes for the greater part of their lives.

And the board agreed with him, for it promptly voted down the tooth brush proposition. The children in the cottage homes at Folkestone may not have any teeth at 45, but they will have preserved their stamina. "Back to nature" is the stirring slogan of the sturdy stalwarts of Folkestone.

**The Editor on His Daughter's Marriage.**—Bailey, the Britt, Iowa, Tribune man, had a daughter married recently and the following is his write-up of the event:

"Twenty-one years ago yesterday a little girl baby was left at our house, red, wrinkled and homely; but mother decided to keep her, because at that time she had only one other girl. The various troubles incident to childhood came—whooping cough—measles—scarlet fever—in succession. We fought them off and saved her. But about a year ago a dentist came; the attack was soon known to be serious. It was a severe case from the first. She had always been a good girl and always seemed to rally from every attack but this one. We suggested all the remedies we could to save her, but she didn't appear to want to be saved. Last night the dentist carried her away to Illinois to introduce her to his people as his wife. They will be back in a few weeks to begin life in a home of their own, but the girl that was a baby twenty-one years ago, that has been the light of our home ever since, has gone. If she makes another home as bright as she has ours, we know a dentist who has won a prize.

But a wedding is not so much different from a funeral after all when there is a vacant seat at the table and the familiar voice and footsteps are gone. May God's richest blessings rest on our new son and his girl wife.

This is the second time this kind of a game has been played at our house and it is getting monotonous. We have one more girl and the first fellow that comes around after her is going to get—well, mother and I haven't yet decided just what."







DR. CHARLES A. KITCHEN.

*See page 708.*



## PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION

### PROSTHETIC DENTISTRY.

By B. J. Cigrand, B. S., M. S., D. D. S.

(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois.)

#### CHAPTER XIX.

We have, during the past five years, devoted much attention to crown and bridge work, but the consideration related to the superstructure—to root preparation, band construction and crown formation. We have arrived at a point where we fully realize the importance of the mechanical principles involved, in that we appreciate the force of the jaw and the necessity of perfect fit on the roots. In this eager crusade against force, we have in a measure forgotten the importance of the basic purpose which determines the ultimate success of the mechanism.

Imperative as it may seem to fully comprehend the superstructure, the substructure of a crown or bridge is indeed primal. The one is no more essential than the other, and both are indispensable.

Dental gatherings throughout the United States have reflected the opinion that there is still a disposition on the part of too many operators to employ the forceps whenever the dental organs present conditions slightly unfavorable for a filling, or a crown. The tyrannical reign of the forceps has driven many thousands into the slavery of ill-health. There is much comfort, however, in the fact that a happier era is upon us, for the dentists who are members of national, state, or local societies are no longer guilty of extracting or crowning teeth which may be preserved by the agency of a perfect filling. Not only are the members of dental societies eager in their war against this form of malpractice, but the students at the several dental colleges are also earnestly laboring to become deserving of membership in a profession which hopes to save and restore the organs of mastication. The general public is gradually being edu-

cated to a full realization of the importance of good teeth, and the time is not far distant when "the loss of a good tooth shall bring sorrow to the entire household."

It is deplorable that too frequently the lateral or first bicuspid roots are extracted, and a tooth supplied by some system of bridge-work; cutting down the sound adjoining teeth, collaring them with gold, when it was within the province of dental prosthesis to save the root, and place upon it an individual crown, such as would afford the natural denture with a hygienic substitute fully in accord with physiological laws. Nature scorns to be tied up, or confined, and the present systems of bridge-work with their yokes of gold chaining and enslaving one tooth to the other, are contrary to nature, and work ill results. More especially when the load is unbearably large, as in the case of a mammoth attachment of five or eight artificial teeth resting on two roots. How pre-eminently better to save these roots by affixing two individual crowns and supply the missing teeth by well fitting partial plate or a removable bridge denture. The profession does not yet recognize the merits of removable saddle bridges. To avoid applying bridge-work in every instance possible and attach the individual crown instead should be the earnest ambition of every member of our profession. Yet some continue advocating large bridges on weak foundations.

Notwithstanding that enthusiasm is a necessary attribute in all progressive work it must be curbed by a judgment founded on experience. Few new discoveries have run the gauntlet of the profession better than bridge-work. That this system of restoring lost dental organs has suffered much through too prevalent applications, no one familiar with its history can deny. Advances in the arts and sciences must be of slow growth. Like government affairs, reform must be of so gradual a process, that unbeknown, it steals its way into the hearts of men; for when of too rapid a nature it is both unhealthy and short lived. In our profession, as in all organized society movements, the conservative must be the "pillars of strength."

The conservative practitioners throughout the broad land have recognized the error of the enthusiastic bridge builder, who freely spans between two natural teeth an attachment of five or even eight artificial ones. They have observed that the hastily constructed Richmond crown with ill-constructed ferrule has inaugurated a siege of periodontal and alveolar troubles; they have carefully noted that

the all-gold-telescope advocate who so eagerly caps a slightly decayed tooth has outraged his profession, and all this has taught the conservative practitioner that no tooth must be subjected to a process of crowning unless the restoration of the neighboring teeth absolutely indicates such a procedure. Dental elimination and annihilation or aphaeritic operations properly fall to the oral surgeon and have nothing in common with prosthetic dentistry, which has come to mean dental substitution and preservation. Crown work has advanced in theory only when the theory has brought fruit in actual practice. In its twofold evolution it absorbs from every available source, which tends to broaden its art or perfect its science, and in consequence calls to its aid anatomy, chemistry, therapeutics, surgery, physiology, pathology, mechanics and sculpture. The prosthetic has evolved from the mere mechanical to a plane where it is quite in evidence in the dental operatory, while the operative has also become more thoroughly interlaced with the prosthetic, and the necessity of resorting to the laboratory is apparent. And so instead of these two grand divisions of dentistry separating they are coming closer together, and call into effect the same underlying principles of both mechanics and medicine.

The great variety of crowns which are at our command may be divided into three classes: First, those of porcelain; second, those of metal, and third, those of both porcelain and metal. These three grand divisions might be subdivided into three groups, namely, those which band the root; next, those which depend on a post, and lastly those which are anchored by both ferrule and post.

Of the innumerable methods advanced for crowning or substituting teeth none can be advocated as the universal or best; each has an undisputed territory, all have meritorious features and all share in shortcomings. It, therefore, remains for the operator to decide which of the methods or systems is more preferable.

The first class of crowns which we will consider relates more especially to the Logan, Davis, Brewster, Fellowship and others of similar construction. I do not purpose criticising the construction of any of these crowns or bridges but will confine myself to calling attention to matters of importance other than those which relate to construction. These porcelain crowns, more especially the Logan, can be made more permanent by assisting in making the anchorage on the root more stable.

In order to get the better retention and afford greater strength to the root the crown may be ground and adjusted on the root end and at the same time the crown post be fitted into the canal so tightly that, independent of the cement, the crown will have a firm hold on the root. This method of sparing root structure and giving additional anchorage to the metal post gains the approval of all who recognize the principle of force in mastication. Too many operators drill or ream out too freely from the canal, and leave a thin wall of tooth substance to carry the great strain and leverage of the Logan post. A moment's reflection will convince anyone of the shortcomings of this method.

In using the Ottolengui canal reamers, it is a mistake to employ a large one and produce a large circular opening into the root to receive the Logan post. Choose a small reamer, and by giving it an antero-posterior movement you are enabled to cut an opening of an elliptical character, and you leave the root structure thick at its lateral sides, where the major strain falls, and where the root must of necessity be the strongest. Further, this rhomboidal opening allows the Logan post to tightly hug the walls of the root canal and thus affords additional anchorage to the crown.

It is evident that a crown set as recommended cannot loosen or fracture the root unless the post first stretches, and this, I believe, is the cause of many of our crowns loosening. The primary cause does not lie hidden in this, however, but in a factor of which I will speak later. If the posts in the Logan, or in any of the full porcelain crowns, were made of iridio-platinum instead of pure platinum, there would be less likelihood of the yielding process, and the stability of the crown would be more assured.

The Brewster, Davis and Fellowship crowns are in many respects an improvement over the Logan in as much as the pin is smaller and more rigid, admitting of crossing small rooted laterals and insuring permanent lodgment. I have gotten the best possible results from the Brewster crown by fitting the post tightly and just before setting same take the crimping plyers and producing a wave in the metal post; this causes the crown to adhere tenaciously without contributing a strain to the material of attachment.

The next step in setting these crowns so as to attain enduring success, is of great importance, and must be carefully executed. Place a sparing amount of oxyphosphate on the post portion and

paint the point ends of the porcelain with a film of chloro-rubber, the latter being produced by adding chloroform to red rubber in a sufficient quantity to make a thick paint. Having thus prepared the post and basal end, and having protected the root from moisture, insert the post and gradually bring the crown into the desired position. I frequently employ instead of chloro-rubber a thin band of gutta-percha, heating the crown with the latter and then applying the requisite cement. This method has been advocated for some time, and it has been shown that gutta-percha has all the properties necessary to withstand the action of the acids of the mouth, and as a representative agent against caries, even where every other material has proven a failure. I have found that chloro-rubber is fully as good and possibly better for this particular service, in that it can be handled with greater ease and does not become aged as soon.

The earliest reference I have been able to find regarding this method occurs in the *Dental Cosmos* of 1887, page 749, and reads: "Dr. Richmond usually takes a thin, perforated disk of gutta-percha, pushes the post through it, warms the crown, presses it into place, and when cooled removes the crown, and with a sharp knife trims away the gutta-percha close to the crown neck. He then warms the crown, puts a very little oxyphosphate cement on the post, and presses the crown home."

I have had excellent results during the past six years, since I have employed gutta-percha in combination with the cement, and I hope to emphasize the necessity of sheltering the cement by some agent congenial to the oral tissues and capable of resisting the action of lactic and hydrochloric acid.

It is very important that we give careful attention to the manner in which we mix the cement. If we hope to perfectly anchor the crown, we must be certain to incorporate a liberal amount of powder into the mixture and stir rapidly, since the fluid with but a sparing quantity of powder cannot endure a strain. Even the temperature under which the cement is formed has much to do with the strength of the cement. Cement gives the most favorable results when mixed in a temperature of 75° F. For some time I have mixed the cement on a porcelain bottle having four flat surfaces, and fill the bottle with cold water in hot summer weather, and hot water in cold winter weather. During the extremely warm weather I have resorted to this method, and am decidedly pleased with the good

results; prior to learning this simple method, I used a porcelain slab in summer, and a block of enamel paper in the winter.

Recently at a large meeting the question of setting porcelain-baked crowns was discussed and some few entertained the idea of setting them with gutta-percha, advocating that this material admitted of easy removal of the crown and also acted as a soft, yielding cushion for the porcelain substitute.

I am not prepared to accept this method as practical or hygienic. I doubt the practicability of such a procedure, besides it indicates a temporizing effort. But this is not the main reason for my objection to the use of gutta-percha alone; I cannot believe that a crown which is set on a material which acts as a cushion is sufficiently dense as to exclude the oral fluids. If it yields, springs and changes to every form of pressure, it goes without saying that the material is porous, and in consequence harbors the oral fluids, and this would quickly destroy its efficiency as also allow lodgment of debris. I have tried this method and have discarded it, since I have greater faith in the employment of cement and gutta-percha when used in combination, as already cited.

Some operators advocate the use of the bur in shaping and trimming down the joint portion of the root, but it has been my experience that the corundum wheel produces a smoother surface and is not so apt to spring from the border of the root. The wheel must be narrow and of sufficient circumference to allow easy access to the root without liability of interference with the adjoining teeth.

I have in days gone by used these root facers and find that they not only abuse the gums but break the enamel, causing a fractured circumference. Besides the severe wrench is sufficient to disturb the continuity of the periodontal membrane and tax the entire nervous system, and by this treatment you may have inaugurated inflammatory processes which threaten the usefulness of the bridge or inflicted a neural disease to the patient, and hence the work is a failure.

The second class of crowns—the all-gold telescope—often results in failure because of two causes. The one being that many dentists still believe in capping exposed pulp, and second, because they over-irritate the pulp while cutting and grinding the tooth into the required shape. It has been argued that the reason why pulps die under well-made telescope crowns is because of the presence of



arsenic in the cement. I do not now share in the belief of this theory, since cement fillings, when lying in proximity to the pulps, do not devitalize this organ. The reason or the frequent disturbances in these forms of crowns is from super-irritation to the pulp while shaping the tooth with disks and stones. The heat which these processes induce is decidedly more severe than we on the business end of the instrument realize. We need not fear devitalization if we are certain of healthy conditions and observe care in grinding the tooth.

The all-gold shell, when telescoped over a huge amalgam filling, often results in failure because of the action of the mercury in the filling. And when this filling is anchored by screws other than gold and platinum the entirety will invariably result in failure, notwithstanding that the gold crown is constructed without a fault. The anchorage has been insufficient.

The third class of crowns—those of porcelain post and band—share in the same liability of failure as the previous crowns, with the additional likelihood, resulting from necessitating positioning the band further under the free margins than the all-gold, the latter having the advantage of tooth surface for attachment.

Often when these crowns are set on the small lateral root the circumference of the root will not allow a thick, heavy post, the result is the force of mastication bends the post and tips the crown forward, which is and looks about as coherent as the leaning tower of Pisa, and like this historic tower, can be advertized to the world as standing so, by neither accident or design.

Very frequently patients will call, describing slight pain at the gingiva of a crowned tooth. Possibly you have crowned the tooth and remember that the root was carefully prepared and crown perfectly constructed. You cannot account for the inflammation about the basal portion of the crown. Invariably you treat this hyperaemic condition with some medicinal agent, but the patient returns with the same suffering and the color lines unchanged. If the fundamental law of surgery is not observed, namely, "Remove the cause," the utility of the crown is seriously interfered with, and often the inflammation extends and additional complications added, ending in failure.

If you will take a tube of rubber and cut off a small ring about one-sixteenth of an inch wide and scallop it out so it will comple-

ment the alveolar ridge and slip this over the distressed crowned tooth and dismiss the patient with instruction to return the following day. The next call you may carefully remove the rubber band. Do not wipe the circumference of the root with cotton, as the gums are highly sensitive and congested, but bathe the parts with tepid water, forced against the gums from the syringe, and upon investigation you will behold nodules of cement. Remove this foreign matter and the gums will rapidly heal and hug the crown. I have observed that innumerable crowns and bridges are inaugurating just this condition, and it behooves us to be less eager to discharge the patients until we have satisfied ourselves that the final work of adjusting and anchorage of the crown and bridge has been carefully done. In connection with this do not forget that the durability of a crown and bridge largely depends on having the parts perfectly dry before you bring the crown into position. If you chance to have the time take a crown or bridge before setting same and subject it to the critical lens of a microscope and you will be introduced to a few more causes which produce prosthetic failures.

There are many things which contribute to the success of crowns and bridges, and possibly you will pardon me for reminding you of the tendency of this American age, which has come to mean hurry, haste and hustle, or the greatest amount of work in the least given time. We are suffering from a disposition to accomplish perfection without the intervention of tedium, and this the logic of ages says is impossible.

What the artisan pronounces as complete the artist stamps as just begun. And there is as much difference between the results of the two as there is between a fiddler and violinist, a distinction which possesses a difference. The real masters in art and science attribute their success to observing the importance of trifles. Not to the number of instruments they possessed or paint brushes they claimed, but to a full knowledge of what few they had. Michael Angelo and Benjamin West stand out as shining examples of what could be accomplished with one chisel and a single brush. In other words, a familiarity with detail and full understanding of "finishing touches" were the essence of their achievements.

The great artist, Fuceli, while teaching the painstaking task of portraiture, had a student who diligently applied himself to portraying a distinguished Roman senator, and after months of work

was gratified in showing the product of his brush to his famous instructor. Upon showing it to the old genius he received this compliment: "You are doing nicely; the basic work is splendid, and with earnest fortitude you will in a few more months have a picture of Callacius."

There is a lesson in this for all humanity—though I cite the incident with a view of halting the rapid prothesist. If those of us are conscious of the dominion over which we rule we will awaken to this thought: Our labors will be highly compensated by an appreciative public when we render artistic, serviceable and enduring substitutes.

(To be continued.)



**OPERATIVE DENTISTRY.**

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(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

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**CHAPTER XIX.**

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**THE RATIONALE OF THE INLAY.**

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It is only within recent years that the inlay has come to be looked upon as a rational procedure as a means of filling teeth and producing contoured restorations; and it yet has, among many operators, unbelievers in its efficiency and durability. A concomitant of the inlay whether of gold, porcelain or other material, is the cement which holds it in place and fills the minute interstices between it and the tooth substance. The question of the strength and durability of the cement has entered largely into the prejudices that obtain toward the insertion of inlays. There was a time, not so long ago, when to presume to insert inlays in places and under conditions such as is quite commonly done to-day by those experts in the work, would have been pronounced a foolish attempt to upset the laws of common sense and the principles of mechanics. And there are those who still look upon the work as a mere fad, and the results something to be in no way relied upon; notwithstanding there is a large amount of such work done by proficient and painstaking operators, that has stood the test for a longer period than the average life of other kinds of fillings; and this even with cements not always to be relied upon on account of the dentist not being able at all times to control the peculiarities of the mix. In the light of experience with cements as a *filling material* we are aware, of course, that they are not reliable for permanent work; and yet, every dentist knows that he now and then strikes the happy combination of liquid and powder, together with other conditions that influence the crystallization, and produces a filling that is almost as hard and durable as the tooth itself. He does this accidentally, for he does not know the exact proportions, and may try a hundred times to follow the same steps, as he comprehends them, and, while he may produce by his painstaking a better than average density time after time, he gets but rarely that crystallization that has an almost flint-like resistance to cutting instruments and fluids of the mouth. The inlay worker has learned two things about cements; one is that a thin layer as a hold-fast for inlays is decidedly stronger than a thick layer; the

other is that cement crystallizes with greater density and strength *under pressure* than without it.

Early workers in placing inlays made it a point always, after the inlay was made, to cut out the cavity a little more, keeping away from margins, to allow for a thicker layer of cement except at the aforesaid margins. This is permissible now, as a rule, only with gold inlays whose conductivity of thermal changes is so great that an area directly over the pulp is sometimes covered with a thicker layer of cement than is necessary with a porcelain inlay whose conductivity is very nearly the same as the tooth. Gold inlays are frequently made hollow, with an opening on the pulpal surface. This hollow is filled up with cement in setting, and some operators imagine this gives a better hold-fast than without it. It really is of little account for anything but the simple reducing the conductivity, for the inlay is retained by the good surface contact it may have with all the cement pressed out that can be, except a layer for pulp protection. We all know that if our cement fillings could be made lasting under masticatory wear and the disintegrating influences of the fluids of the mouth, nothing better is needed to preserve the tooth; besides being a nearer approximation to tooth color than anything we use except the porcelain. Now the rationale of the inlay is this: If a careful, painstaking fit is made there will be but a thin layer of cement involved, and that thin layer not only covers and protects the tooth walls, but, crystallized *under pressure*, it makes a dense, strong retainer with the least possible exposure to the fluids of the mouth. The possibility of not getting the correct mix of the cement, and of disturbing it by slow or uncertain manipulation after crystallization begins, leads to some failures with inlays; as does also the lack of good judgment in shaping the cavity so as to have a firm and proper seating. There is something to be desired in the make-up of cements to render them ideal or perfect in all respects. An ideal cement should be of light color, translucent if not transparent, together with all the qualities of strength and durability. And yet, with all its faults, very perfect and durable inlay work has been, and can be, and will be done; and, not having our ideal cement yet, we must adjust ourselves to things as we find them for the present, not relaxing our research for something better. In oxy-phosphate of copper cement we have something well nigh perfect, except its jet black color. It can, however, be used for gold inlays in many places; all, perhaps, except where the black might show

through some translucent walls and make the tooth dark. It may be used sometimes with thick opaque porcelain in some cavities of posterior teeth where the fine black line of union would do no harm. Its hold-fast qualities are superior to oxyphosphate of zinc, also its antiseptic qualities.

No careless and indifferent operator should undertake inlays. This statement, however, should cover more than inlays. No such operator should presume to practice dentistry at all. To make inlays requires not only skill but a particularly fine artistic taste—that is, to make porcelain inlays that are aesthetic in appearance as well as being well fitted. An operator may make perfect fitting inlays that will be good tooth preservers, no matter how imperfect the shade and contour, and preservation is always the first and greatest desideratum in filling teeth. But even an off color in porcelain looks better generally than gold, and is better than a faulty gold filling. Average fillings are not good fillings. Average inlays are much ahead of average fillings as tooth preservers. To prevent recurrence of decay a cavity must be hermetically sealed, and inlays with their protected layer of cement do hermetically seal them. Very few metallic fillings do so.

Now, if we can make an inlay stay the average time of fillings (and they rarely come out after they have been in a long time) they should be looked upon as quite as permanent and durable and quite as much of a success as other fillings; and more, for as long as they stay no decay goes on under them. Gold inlays in plenty have lasted fifteen and twenty years and look good for as many more years. They can be made and anchored in proximo-occlusal cavities in molars and bicuspid with more certainty of withstanding the strain that will come upon them than porcelain. Porcelain in bulk is strong; as, witness false teeth and crowns; but gold is stronger and especially when we extend an approximal cavity occlusally using but a comparatively slender acclusal prolongation for anchorage.

No subject in dentistry to-day is so much alive and generally discussed as the inlay question, with new converts coming over every day to swell the ranks of inlay workers, adding to the proof that the inlay is rational and has come to stay. Porcelain with its aesthetic and life-like appearance is greatly to be desired wherever it can be used; and, by expert workers it can be used in any tooth in the mouth with a reasonable amount of expectation that it can be depended upon to fill the bill in all respects. By expert workers is

meant a thorough familiarity with this particular kind of work which only comes by a certain amount of experience after the technique has been acquired. When one thinks of the technique and practice required to put in good gold fillings and to perform other delicate operations in dentistry, no good operator should fear to undertake inlays, calculating, of course, upon some possible failures, as in other beginnings, until knowledge and experience is obtained. The exactness and carefulness of every detail is an essential to success.

Simple cavities to be filled with porcelain are comparatively easy, provided margins are made sharp and distinct in preparation, and the matrix is made to show them distinctly as a guide to correctly outlining the precise surface shape. If margins are over-lapped with a thin layer of porcelain the inlay when stripped of the matrix will be ragged in outline and chipped, so that disking will be necessary after the inlay is set, which in a measure destroys the fine finish that the fusing of the material leaves. No attempt to fuse an inlay should be made after the matrix is removed for it will change materially.

In a well-fitting inlay with cement thoroughly squeezed out and held under pressure until it is set, there is practically no dissolving out of the cement, and if the mix and crystallization have been correctly considered, and manipulation of insertion not carried out too long to interfere with crystallization after it has begun, the inlay will be found a very difficult thing to dislodge if one should wish to do so; and in consequence is not easily dislodged in its natural use. This depends somewhat upon the seating which, of course, is planned in preparing the cavity. There is no decay around a properly set inlay, as is so frequently found around gold and amalgam fillings. The cavity is hermetically sealed and the conditions approximate very closely the original conditions—before decay began—very closely. The inlay presents a substantial appearance and when properly done is a very rational way to fill teeth. The contouring of built-out inlays and the matching and blending of shades requires an artistic taste not given to all men.

(To be continued.)

**DENTAL THERAPEUTICS.**

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

**CHAPTER XIX.**

In connection with potassium there is a chemical substance that seems, from a medicinal standpoint, to belong to the same category of drugs as that of potassium and iodine. We have reference to bromine. It is usually obtained from the residue of sea water. It is a liquid of deep red color, and has a specific gravity of about three; it gives off very poisonous fumes. It combines with many of the simpler inorganic compounds, especially the inorganic salts, forming bromides.

The early idea was that these bromides had no further action than some of the chlorides, such, for instance, as the chloride of potassium or the chloride of sodium. In the use of potassium bromide it was thought that the constitutional effects was due to the potassium ions instead of the bromine ions; but later observations conclusively demonstrated that the bromine when introduced into the system in the form of a bromide, acted somewhat in the same way as that of the other compounds above named.

When potassium bromide is introduced into the body there is the characteristic cardiac symptom produced by the potassium, but if sodium bromide be introduced into the circulation these specific actions are largely due to the bromine. The most favored method of introducing the bromine into the system is in combination with potassium. When introduced into the alimentary tract it acts somewhat in the same manner as the sodium chloride, having a bitter, salty taste, producing thirst and increasing the salivary secretions; and large quantities taken into the stomach cause nausea and vomiting, and occasionally diarrhea, followed by a dull, heavy headache, with fatigue, languor and muscular weakness, the individual being unable to engage in any physical or mental exercise, with more or less confused memory, and speech is difficult on account of inability to collect thoughts. The patient is unable to obtain sound sleep. The reflexes are much depressed when the administration of bromide has been continued for any considerable length of time, consequently, if the throat, mucous membrane, or sensitive parts are touched they will not respond as they would under ordinary cir-



cumstances. After very large doses of bromides the irritability of the skin, mucous membrane of the genito-urinary tract or conjunctiva, is very much lessened and, many times, can be touched without any appreciable response; the pulse and respiration are also interfered with; the urine, in some instances, may be increased in quantity.

When bromide is given in large doses and at frequent intervals, a general train of symptoms may be observed. The most common symptoms of poisoning from this drug is the appearance of eruption of the skin, and in severe cases have small pustules form, and they sometimes unite in forming small abscesses, which break down, forming small ulcers. The appetite is usually interfered with. The throat and air passages are not so liable to be affected with bromine compounds as they are with the administration of the iodides. These symptoms usually disappear as soon as the administration of the drug is left off, but the patient seems to be left in a state of susceptibility to local and general infectious disease.

While as yet there has been no manifest acute symptoms that has led to immediate death, many patients have died after the long administration of the drug or after its withdrawal, owing to the fact that certain bronchial affections appeared as a secondary cause of death.

Bromoism is one of the conditions that follows the long administration of this drug, in the form as above described. The administration of bromides have almost entirely been in the form of bromine of potassium, consequently, research and observation on the pharmacological action of bromide is not very well established. It has been observed, however, that the depression of the central nervous system in the frog, with certain bromides, coincides very closely with those of potassium chloride. The irritation of throat and stomach, followed by vomiting and diarrhea when the bromides are administered, is attributed to the withdrawal of the fluids from the mucous epithelial; this is supposed to be overcome when the drug is administered at a time when the stomach is well filled, especially with a substance of a fluid nature.

The action of bromides on the central nervous system seems to be a depression of the motor centers, especially is this true in the dog. Its action on the spinal cord is of a more or less depressing effect, therefore it can be used as an antidote to strychnine, because the last

named drug has the opposite effect, which is to increase the irritability of the cord. It is supposed that the action of the bromides on the central nervous system is due to the agent itself and not to any chemical combination it may form with a basic substance proteid molecule. The same can also be said of sodium, potassium, lithium and ammonium.

However, it will be well to state in this connection that potassium bromide acts somewhat more profoundly than does the above named agent, because it is believed that potassium assists in the action. The blood vessels of the pia mater are oftentimes contracted when bromide has been administered for any great length of time. This is supposed to be the reason for the depression on the central nervous system, 'bringing about somewhat the anaemic effects that are observed in the brain during sleep. The eruption of the skin has been attributed to the superficial glands trying to excrete the bromide through the skin, because the bromine has been found in the contents of the pustules; consequently, it is thought that the skin in attempting to eliminate the foreign substance that certain quantities of the bromine accumulate in the cells and act as cell irritant. It is possible that such might be the case, for it is known that a similar condition is produced in the case of the iodide. Bromides differ to that of the iodides in that the bromine seems to be too irritating, leaving the cell in a rather weakened condition, while in the case of the iodides unless it is forced in, in considerable quantities in the cells, it acts upon the cellular substance in a way that increases cell proliferation, thus fortifying the tissue against the attack of bacteria, while in the case of bromides the cells are apparently left in a susceptible condition; and the pustules that are formed in bromoism while they, beyond question contain the bromide, at the same time this fluid contains bacteria. It was my privilege at one time to study two cases pretty thoroughly that had been long on the administration of bromides, and the staphylococcus pyogenes was present in the fluid taken from these pustules.

The action of the bromides may be explained in this way—the cutaneous glands attempt to eliminate the bromide and these glands become irritated with the epithelial cells in the adjacent structure, and these bacteria, which are always on the surface of the skin, become catalytic irritating agents, causing breaking down of the cellular structure until leucocytosis has become fully established and they wall off these particular irritative glands and prevent the

further action of the bacteria, owing to the low virulency of the micro-organism themselves. As was previously stated, the iodides have the power of increasing leucocytosis and also have a chemotactic property for the bacteria themselves, thus destroying the possibility of infection in the case of iodide administration, while in the case of bromides we have the opposite effect on the tissue.

The bromides are excreted principally through the urine, but traces have been found in the perspiration and other excretory channels, such for instance as the milk; and in chronic poisoning a certain quantity seems to be eliminated in the volatile substance of the lungs, because the odor can be detected on the breath of persons suffering from bromoism.

The action of sodium bromide differs in some of its characteristic symptoms from that of potassium bromide, in so far as it does not have the depressing effect on the central nervous system, which is due to the fact that the potassium has a certain influence on these organs, while the action of the sodium is comparatively indifferent to the nerve centers. In the case of bromide of ammonium the action here is due principally to the bromide ion, though when this agent is administered in any great quantities very much the same symptoms are developed as that in the ammonium compounds.

The lithium bromide has not been so extensively used as that of the sodium or ammonium, but apparently it has a greater depressing effect than that of the potassium bromide. Hydrobromic acid gives somewhat the same general symptoms as the bromide action. The local action is more irritating than the above named compounds on account of the presence of an acid. There are compounds of calcium bromide and strontium. They have not been very extensively used but apparently have less disturbing influence on the digestive tract.

The therapeutic use of the bromides have been confined very largely to the treatment of epilepsy, and it apparently is a drug that has filled a useful place in this disease. While in some instances it seems to have but very little beneficial effect, in the majority of cases its results are beneficial; and a few cases have been reported in which complete recovery took place.

It has been my privilege to see a number of cases that were treated with this drug and, I think it might be said that in the majority of these cases, in fact, all were benefited and some were able to leave off the use of the drug until certain symptoms of return of the

attacks would manifest themselves, which was at intervals from one to seven or eight months; then they would have to return to its use. The most common bromide used in these cases is potassium, although many physicians confine themselves to ammonium bromide. Some clinicians have felt that the bromide action was increased by the use of chloral, opium or cannabis indica.

In the treatment of epilepsy it has been considered advisable to start in with small doses, one grain three times a day, and gradually increase this until ten grains are administered in twenty-four hours. It has been observed that very slight beneficial effects have resulted from the use of bromides in other nervous difficulties outside, perhaps, of those of chorea and convulsions of children. The bromides have been used in strychnine poisoning, also in tetanus infection; but chloral seems to have taken the place of iodide in most of the above named diseases.

Bromide has been beneficially used in certain forms of neuralgia, and especially those that are brought on by worry and overwork. The bromides have a useful place in case of sleeplessness that comes from anxiety. A few doses of bromide or chloral will many times secure a rest when but few other things will. I have administered bromide with beneficial results to patients suffering with neuralgia that sometimes comes from sore pyorrhea teeth, where the patient is anxious and restless, or has spent a good part of the night with their face on a hot-water bag. In such cases the patient will be relieved by taking five or six grains in the course of eight or ten hours. However, in the majority of instances, chloral may be administered with even better effects than that of the bromides; but the beneficial effects of potassium bromide cannot be denied in nervous excitements. Irritability of all kinds induced by any nervous excitements, such as overwork and anxiety, especially cases of hysteria, and disturbance of the oral mucous membrane that is brought on at the period of *mano-pause*, can be beneficially treated with potassium bromide.

It was the privilege of the writer, in hospital service, to see a number of cases of delirium tremens in which the oral mucous membrane suffered a great deal of local disturbances and was causing the patient great pain and discomfort, because of the irritability of the trophic nerve endings of the mucous membrane; but when potassium bromide was administered from 20 to 30 grains a day the discomfort of the individual was very much relieved.

Potassium bromide is frequently substituted by ammonium bromide. The effects of the last named agent corresponds in great many respects to that of the potassium salt, in that it acts upon the the cortical brain cells and acts upon the neurons of the motor nerves of the spinal cord. It has been observed in the ammonium bromide that its depressing effects upon the heart's muscles is not so manifest as that of the potassium bromide. This, as has been said before, is most likely due to the absence of potassium. It sometimes becomes necessary to substitute for potassium bromide and ammonium bromide, sodium bromide. This last named agent has still less a depressing effect than either the above named agents. There is a white deliquescent salt, its therapeutic value being about that of the sodium bromide. We have reference to the lithium bromide. It can be administered in larger doses and continued for some more time than the other agents because of its depressing effect.

There are many conditions of patients that come from nervous anxiety, overwork, general debilitated condition of the system, etc., which renders the patient almost incapable of going through dental operations, not because of the pain so much as the general irritability of the nervous system. Many times by administering some agent like bromides or chloral twenty-four hours before the operation great assistance is rendered to both patient and operator. They will also have a valuable influence on the mucous and salivary glands. There are certain trophic disturbances of the oral mucous membrane which renders the patient almost dangerous to be operated upon at a certain time; for instance, the slightest injury to the mucous membrane at one particular point will cause the mucous surfaces to become irritated at other points. How frequently we have patients tell us how sore their mouth was after being in a dentist's chair for some little time, and how frequent the patient will say to us of another dentist that he never performed any operation in her mouth without its being terribly sore afterwards. These are the kind of cases wherein a dentist could render himself and his patients a great benefit by some constitutional treatment, wherein the nerve endings of mucous surfaces are rendered less susceptible to local irritation.

It is not necessary to administer drugs for the purpose of stopping the action or diminishing the flow of saliva or mucous glands, but with the administration of some agent that will render the nerve endings more passive in their action it will render the mucous membrane

less liable to accept infectious agents that might possibly become lodged in the mucous follicles. When we take into consideration that certain mucous patches, especially those of benign nature, are simply the results of some trophic disturbance of the nerve endings which results in a local infection, due not especially to the virulent micro-organism but most likely due to a saprophytic bacteria that is permitted to lodge in the simple tubular glands, and there incubate; and by their presence produce an irritation and interfere with the physiological function of those simple glandular structure until that disturbance has reached the basement membrane upon which these simple glands are resting; there they are met by the leucocytes which resists their further invasion. There these small ulcerations may be spread laterally until a certain area has become broken down, forming somewhat considerable ulcerated surfaces. These conditions are the results of both an external irritating agent and a trophic disturbance of the motor nerve ending, that is, the motor nerve endings that effect the expansion and contraction of these simple mucous glands.

(To be continued.)



# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller.

(No. 15.)

The day was closing.

The last gleam of the setting sun shot athwart the sky, bathing in a golden glow with brilliancy unexcelled that magnificent structure known far and near as the observation tower of Montgomery Ward.

It caused, too, the gilded and lightly draped damsel (if it is one), deftly poised on one shapely foot at the apex, to shine with a radiance quite unknown to maidens in flesh and blood in lower walks of Chicago life.

Not half a league, nay, not more than two or three blocks distant, stands another tower like building reaching up to the sky.

A casual observer, nor yet a fairly close one, passing in the street below, at this hour, would scarcely have noticed that away up near the top story, against the window pane, a pale, haggard face was pressed; the face of a young man of, perhaps, two and twenty years.

Yet, there it was, silent and alone, and looking down in a hopeless, vacant, benumbed sort of way upon the cold, hard, pitiless pavement below.

Just above this striking face pressed to the glass was a legend in large gilded letters which read: J. Percy Smartly, D. D. S. (poor devil!).

These letters, while large and distinct and shiny, could only be read from below by a very strained upset of one's face to about  $87\frac{1}{2}$  degrees.

Nevertheless, they told their tale to the patrons of the upper stories of the skyscraper across the way.

It was a strange coincidence, perhaps, that though the mar and the name were connected, both should be glued to the glass together like a portrait to which the name is subscribed; for while one be-

longed there—the name—the other—the owner, did not, and especially in that hopeless downcast way.

No one would presume to question the right of the face to be pressed against its own glass, even at that unseasonable hour, when others of his ilk, occupying similar suites in the same building, had taken their way homeward some two hours or more before.

To be sure, dentists have frequently to work overtime, but tonight Dr. Smartly was not staying late to do some vulcanizing, nor to scrape and polish up a rubber plate; for evidently his thoughts were far from any such hum-drum affairs.

Had anyone been near enough to note it, an uneasy glitter might have been seen in his eye, and his gaze steadily set on the hard, cruel pavement below, might have set one to wondering if his thoughts were not of suicide.

But why suicide? It could not be on account of financial stress, for only that forenoon he had put in three cement and two amalgam fillings, and was at that moment jingling the coin in his pocket; and for several days before this business had been equally good. He could even have afforded a couple of day's idleness if, perchance, it were enforced upon him.

What, then, was it that was biting J. Per—beg pardon—what was it that worried and wrinkled J. Percy's noble brow and caused a look of such deep concern and distress?

Ah! dear reader, no doubt you who have had a like malady may surmise what was the matter. A lover's quarrel.

That very afternoon, only a few short hours before, life had never looked so bright; for had not Hazel Haskett, the idol of his heart, lent the perfume and sweetness of her presence to his office on the pretext that she had an aching tooth.

Hazel Haskett was the beautiful and only daughter of "old man" Haskett, who counted his dollars up to the seven hole. She had come this afternoon, not so much for professional services as to have a pleasant hour with Percy, if he were not busy, and to take him home in her automobile.

She had told her mother a little white lie about the toothache, which the mother half suspected, being well aware that really the aching was a void in the depths of the daughter's heart, and which it was hoped Dr. J. Percy Smartly had diagnosed and in due time would fill, being a pretty fair sort of an eligible, though not extremely wealthy.



As for Percy, he had for some time been congratulating himself that he stood next, and that his winning ways, together with good fortune, seemed to be leading him directly into a very soft snap—into pastures green and rich. Not that he needed the money, and was thus mercenary, but because the girl was a great treasure in her own sweet self, regardless of the millions behind her.

The money was not objectionable and J. Percy had allowed a few bright dreams to flit and flutter through his brain.

But, alas! the course of true love never did run smooth. Hazel had come to him that afternoon, all sweet smiles and tenderness. She had left him with a frown, angry words, and a hard, stony look in her face. Would she ever return, or allow him to ever again take his accustomed place on the parlor sof—davenport—on Sunday evenings after church?

What had caused this sudden rupture and put everything at sixes and sevens?

It seems that Percy had been posing as a wise guy about a good many scientific things, in one way and another; and particularly about drugs and medicines. He had even dug deep into the mysteries of plants and the oils and gums contained in them. He was on the verge of a great discovery. He had made some experiments with castor oil, glue and some of the gums in an endeavor to find a good substitute for rubber. He had been doing some work along this line when Hazel made her appearance, and it was quite natural that he should discuss his progress and prospects with her, although they were not yet formally engaged. Hazel was interested, but at the mention of castor oil she remarked: "Why, I didn't know that it was used for anything but medicine, and it is the nastiest stuff anyone could be asked to swallow. I wish you would invent some way right now that one might take it without tasting it."

The conversation then drifted into other channels, but J. Percy Smartly had an idea stirring around in his head. He casually cast his eye over his armamentarium of medicines. He had a little good wine, and his eye fell upon some malted milk—free samples. After awhile he asked how she liked malted milk, and stepped out of sight to mix some. After presenting it to her, he waited for comment. It came in this way: "Percy, what did you put into this malted milk?" "O, a little wine," he replied. "Do you dislike it?" "No-o; there is an odd taste to it, but I like it. We've

talked about castor oil until I can imagine I taste it." This caused Percy to laugh. "Why do you laugh?" she asked. He answered, "I have invented a new disguise for castor oil," still smiling. But that smile vanished when he saw a cloud come over her brow and fire gather in her mild blue eyes. "Percy Smartly, you horrid lobster!" she cried. "Did you not ask me how to disguise it?" he queried. "Yes," she said, her eyes snapping, "but that was for mother. *Mr. Smartly*, you are altogether too fresh! I will bid you good-day."

Before he could realize it she had gone, and he reeled to the window and by pressing his face close he could see her as her chauffeur helped her into her automobile and sped away, possibly never to return. The thought was agonizing, and stunned and dazed by the sudden change in his affairs he stood there until the shadows began to fall. This is where we found him and it is where we will leave him and pull down the shade.

Moral: With all sorts of drugs in our armamentarium, some dangerously poisonous, it behooves us to be thoughtful and careful in our administration of them. Malted milk is not a drug, but in its place a splendid dietary article; and while it may be a good overcoat for bad tasting drugs it is not always good office practice to so use it.

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### **Toothsome Topics Every Month.**

## CLINICAL PROGRAM AT THE FOURTH INTERNATIONAL CONGRESS.

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Reported by Geo. W. Cook.

It may be said that the clinics of the Fourth International Congress will, in many respects, eclipse anything of the kind that has ever been held. It is usually, in such large meetings, that the clinics are so crowded that the operations are quite unsatisfactory both to the clinician and the observer, but in this case the arrangement of the clinic room and the facilities for handling such a crowd was beyond the expectation of most everyone present.

The great interest that is being taken in porcelain work was fully manifest when one takes a casual glance at the program and sees the great number of clinics that were given upon this subject. It will be quite impossible to give in detail the great number of clinics and all of the points that were brought out by each clinician, besides it would be out of place to attempt anything of a detail observation of the work of each clinician.

Craig W. Work, of Ottawa, Iowa, was down for porcelain restoration, mesio-occlusal cavity of a central incisor. He fulfilled all the expectations of all those who were familiar with his skill in this line of work.

W. A. Capon, of Philadelphia, Pa., whose skill as a porcelain worker is so well known, it would be useless to say that his operation of restoring the incisal edge with loop and staple was done with such accuracy that one would be convinced by a casual observation that there are certain places where such restorations could not be successfully accomplished without adopting, with some degree, his method.

Reeves and Cheeseman, of Chicago, both demonstrated their ability to insert porcelain fillings in cavities that had been prepared entirely on different lines, and yet performing beautiful operations. Their method of cavity preparation has been so well illustrated by both these men, that it would be quite out of place to attempt an explanation of the difference at this time.

Robert N. LeCron, of St. Louis, showed in a very beautiful manner how it is possible to set porcelain bridges with gutta-percha.

J. M. Thompson, of Detroit, Mich., demonstrated his method of constructing a porcelain crown for incisors without endangering the pulp. If the observation of the writer is correct, he would grind

down the tooth to a form resembling somewhat the sharpened end of a lead-pencil; then burnish a platinum matrix over the end of this prepared tooth, build up the tooth with porcelain and bake it in the usual way; then peel out the matrix and the crown was then ready to be cemented into place.

Val. H. Fredericks, of St. Louis, demonstrated a method of porcelain crown on upper central incisor, which in detail did not differ materially from methods that have been previously described.

Dr. Adam Flickinger, of St. Louis, showed a method of making a removable bridge, but as the writer was unable to get his method of procedure, it is impossible to give anything of an account, other than that he showed a very beautiful piece of work when finished.

Dr. Otto J. Fruth, of St. Louis, showed a case of replantation after the root had been fractured well down into the alveolus. He restored the fractured portion of the root after extraction, placing a crown on the root and replanting the root and getting what was apparently excellent results. Everyone is more or less familiar with the possible results of replantation.

Dr. W. H. Taggart, of Chicago, who is always full of new ideas, showed a unique method for baking Jenkins porcelain enamel body, which consisted principally of showing how low-fusing body can be baked in an open nitrous oxide flame, also showing how a continuous flame can be kept up from the nitrous oxide cylinder by the application of heat to the cylinder. Anyone who is interested in low-fusing porcelain cannot fail to be benefited by reading the full report of this clinic when published.

Dr. Hart J. Goslee, of Chicago, had models and demonstrated various steps in the construction of porcelain crowns and bridges. One who has followed the recent writings of Dr. Goslee could not fail to be interested in his method of procedure, for his models certainly demonstrated his ability to accomplish all he illustrates in his writings.

Dr. J. J. Sarrazin, of New Orleans, showed how it is possible to restore frail angles and edges of incisors and bicuspid with porcelain, so that the strength of the tooth will be much enhanced.

Dr. Chas. C. Allen, of Kansas City, Mo., showed a process by which he was able to obtain perfect adaptation of the matrix to the cavity wall by means of gum camphor. It will well be worth the time to look it up when published.

Dr. John Q. Byram, of Indianapolis, gave a demonstration of how

he swages matrices by first bringing the pressure at the center of the piece of metal to be swaged, and the force gradually extending to the periphery. He is one of the men who always has something worth looking into.

Dr. C. M. Thompson, of Chicago, gave a fine illustration of the formation of cavities for porcelain inlay. Dr. Thompson has recently published some very interesting and instructive work along this line, and it would pay those who have not read his articles to at once do so, for there is something of value on this subject in his recent papers.

The table clinics was a feature, as is always the case, and contained a great number of very interesting features.

Dr. Frumveller, of Detroit, showed a jacket porcelain crown made somewhat in the same way as demonstrated by J. M. Thompson, of Detroit.

G. W. Swartz, of Chicago, showed a useful and interesting way of constructing small removable bridges.

James O. Wells, of Minneapolis, had models showing cavity preparation for porcelain inlay.

J. F. Houston, of Brazil, showed banded porcelain crowns and his method of constructing them, which contained many interesting features.

Dr. F. F. James, of Wilton, Iowa, showed an interesting method of burnishing platinum or gold to a badly fractured root, after the post is soldered in, in the usual manner, he inserts a small pin lingually from the root canal, which is also soldered, and the crown is constructed on this in the manner to suit the case in hand. Dr. James is to be congratulated on some of the beautiful work he showed.

Dr. J. Enos Wait, Superior, Neb., showed very interesting methods of constructing bicuspid crowns.

Dr. F. T. Breen, of Iowa City, Iowa, showed an interesting way of making a gold inlay, by using platinum as a matrix 1-5000 in thickness.

Dr. H. B. Tilston, of Louisville, Ky., showed a method of making a gold inlay by taking an impression of the cavity, in some unyielding materials, and then packing copper amalgam in the impression, thus producing in the copper amalgam the cavity as it is in the tooth; then burnishing or swaging his matrix in the copper amalgam impression and constructing the inlay in the usual manner.

Under the heading of gold fillings there was something like seventeen or eighteen clinics, all of which showed the very highest of manipulative skill in that particular kind of operation. The criticism that will probably be offered to many of these operations will be the useless destruction of tooth substance, in many cases, with the glaring display of gold, making in some instances a long and tedious operation. However, it must be understood by those who offer criticism upon these operations that the clinics there exhibited were to show a principle; and the cases there operated upon could not be selected as in general practice; therefore, any criticism offered would be considered a little unfair.

The clinics and exhibitions of appliances in orthodontia, while not extensive, were certainly of great interest.

Dr. Richard Summa, of St. Louis, showed a very interesting case of fracture and the treatment of same by the application of the Angle method. This case gave a very interesting method for treating this particular kind of fracture.

Dr. C. S. Case, of Chicago, gave a very beautiful demonstration of methods, models and charts, for treating deformities and irregularities of the face. Dr. Case is always bringing out new thoughts on this very important branch of dental surgery.

There were several clinics on pyorrhea alveolaris.

Dr. Taylor, of Streator, Ill., has certainly hit on a very unique and interesting method and certainly an original idea with Dr. Taylor, of placing the rubber-dam on the teeth that are to be cleaned and treated for pyorrhea, and any other local infectious disease of the gums and soft part.

Dr. Richter, of Milwaukee, showed some interesting models of malocclusion and its effects on the parts surrounding the teeth. Of course, it will be understood that one factor is not sufficient to prove the entity of a disease, but there were some very interesting features about Dr. Richter's clinic.

Dr. Stewart, of Memphis, Tenn., brought with him some very interesting thoughts to a great many present.

Dr. A. N. Gaylord, of Philadelphia, showed a method of inserting cocaine into the pulp for extirpation by the means of a hypodermic needle, all of which was very interesting.

There are a great many more clinics that should be mentioned in this report, but time and space will not permit, and besides, all these clinics will be reported in the regular order of the published proceedings.

In oral surgery there were some very interesting features.

Dr. J. E. Orrison, of Baltimore, Md., showed some fine skiagraphs showing uneruptive teeth. These pictures would certainly demonstrate the necessity of this kind of work in those obscure cases where arrested growth of teeth had taken place.

Dr. T. W. Brophy, of Chicago, showed some cases on which he operated very early in life for cleft-palate. The results that Dr. Brophy had obtained are certainly sufficient to warrant the early surgical operation in many, if not all, such cases.

Dr. Samuel Williams, of St. Louis, showed a case of ankylosis. The doctor had certainly obtained excellent results.

Drs. Gilmore and Brophy, of Chicago, and G. V. I. Brown, of Milwaukee, all had interesting operations at the Barnes hospital. These operations were attended by quite a few.

In the department of prosthesis there were a great many interesting things that were brought out that would beyond question, if followed out, give results in practice that would pay anyone for the time spent at the meeting.

Dr. George Wilson, of Cleveland, is one of the men that always has something of value to look at and hear about.

Probably no man in this department was more enjoyed than Dr. L. P. Haskell, of Chicago, one of the pioneers in prosthetic dentistry and who to-day is as interested and ready to give advice as ever he was. And when we think of the good work he has done in this department we hope that he will be at more congresses and more dental societies than he has been in the past.

In conversation with a foreign gentleman upon the clinics, he said that he had not seen a single clinic from which he could not gain some benefits. He further stated, in summing up all the clinics and all the things that he had seen while at the congress, that appealed to him as great advancement, was Dr. Roach's new method of baking porcelain with an apparatus by which he was able to determine the quantity of heat used and the exact time the porcelain fused. The other was Emil Schrier, of Vienna, Austria, a device by which he was able to stop and start his electric engine at the hand-piece.

There were so many things exhibited that one could not fail to see the great advancement made both in mechanical devices and means of operation. It was the privilege of the writer to have been present and study in some detail the operations and appliances pre-

sented at the last three international congresses, and it is interesting to note some very striking advancements in the application of certain mechanical and scientific principles. Eleven or twelve years ago the dental profession seemed to be on the threshold of a new departure. They performed operations then in a more empirical manner, but at the present time, and especially was it so manifested at this congress in the clinical department, their operations were performed purely on scientific principles, or, at least, they seemed to have a scientific reason for performing such operations.

One of the departments of dentistry that seems to have made practically no advancement, in the last ten years, is in the field of therapeutics. With all the essays and discussions that have taken place in the literature of dentistry, the treating of the teeth and the oral cavity for certain local and pathological lesions, aside from the destruction of the teeth themselves, it really seems that the most empirical methods are adopted for the treatment of the mucous membrane and gum tissue of the oral cavity. This is particularly manifested when we see the great number of abscess cures and pyorrhea remedies, to say nothing of the number of mouth-washes, that are on the market, all of which bear the absolute assurance that when this remedy is used in the lesions above mentioned, cure is certain, regardless of all the conditions, constitutional and otherwise, that may be present.

In operative and prosthetic dentistry, when a practicing dentist gets a case that is unusually difficult to handle, he consults some specialists, or someone who is making a special study along these respective lines; but when he gets a difficult abscess to treat, he is more liable to consult the dental supply house.

In this last congress that is just past there has been truly an advance in mechanical and scientific investigations, and the literature on the clinics, when published, will mark one of the greatest epochs in prosthesis that has been in the last half century.



### RADIUM FOR PULP DEVITALIZATION.

The question of devitalization of the pulp will be a matter for consideration by all dental practitioners for there will be many disappointments, many different cases acting differently under the same treatment. We are constantly searching for a new remedy which would possibly prove satisfactory in all cases where a non-sensitive, non-irritating destruction of the vitality of the nerve is desired. It will be long before we will have found a so-called ideal nerve paste. As long as the animal corpus of the same species and the same proportion has a different tolerance against certain poisons we will have always different states of reaction in the application of arsenious acid. By cauterization of the nerve the ability of resorption is the most important factor, and by aiding this we will have better and better results. My opinion is not to use carbol, or creosote, as a mixture, but instead to use cocaine with arsenous acid, both in equal parts, and to add a little water, or better, lanoline, to facilitate handling and carrying to the pulp; this mixture will very quickly invade the construction of the nerve tissue, and will prevent any superficial cauterization which result is produced when carbol or creosote is employed these remedies hamper the action of arsenous acid and prevent it from quickly invading the nerve tissue.

Naturally the success does not depend upon this alone, as there are general precautions to be observed, such as good exposure of the nerve and the good closure of the cavity, etc.—these are of great importance, but are known to every practitioner. So far arsenous acid has been the most favored remedy for cauterization; whether nervoidicin is a good remedy for the same purpose is a question for the future. Should arsenous acid or nervoidicin not satisfy I will serve with the following prescription:

Rx. Radium 0.001.

Sig.—place radium on a little glass pearl and apply in cavity near nerve; close cavity good with any stopping or gutta-percha. Allow to remain in tooth from six to twelve hours.

The radium does not lose, as is known, its property, and therefore can be used an indefinite number of times.

I submit this for the approval of the profession.

OTTO PLUTSCHOW, D. D. S.

# **ABSTRACTS**

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## **AND SELECTIONS**

### **ATROPHIED TEETH.**

(By G. V. Black.)

The term "atrophy" seems to include two distinct ideas; the one is a wasting of a part because of a local failure in the nutritive processes, the other is a failure of the development of a local part because of a failure of nutrition. Atrophied teeth belong to the second class; they have never been fully formed. They came through the gums in the condition of deformity in which they are afterward seen and do not, as some seem to suppose, waste away after having taken their places in the arch. The deformity is a result of incomplete formation.

In the human teeth there is no process of repair and the deformity is permanent. Similar phenomena occur in the finger nails and the hair. During an illness that interferes seriously with nutrition the portion of the finger nail then forming will be dwarfed, which will appear later as a groove across the nail. This, like the marking of the teeth, is not remedied by any reparative process. But the nail is continuously growing and the groove moves on over the length of the nail and disappears.

During a severe illness a section of hair is imperfectly formed, and when the process of growth this section arrives at the surface of the skin and is subjected to bending, it breaks and the hair suddenly falls away. This is a common phenomenon following severe cases of typhoid fever. The hair follicles are not injured and the hair is replaced by the regular process of growth.

In the continuous growing teeth of the rodents such an injury would be finally removed and remedied in the same way as the grooving seen upon the finger nails, but this cannot occur in the human teeth.

The deformity, though much varied in different cases, is, when closely analyzed, always similar in character. It always consists in the failure of the formation of some specific portion of the tooth and of several teeth together. The portions of the several teeth affected is always that portion of each that was in process of formation or growth at the same period in the person's existence. To understand this well one should study closely the calcification of the crowns of the teeth and the contemporaneous lines of calcification of the different teeth. In the incisors it is oftenest seen in the form of a groove, or a pitted groove, running across the labial surface from mesial to distal, and close inspection will generally show that it encircles the tooth completely, though it is most prominent upon the labial surfaces where the enamel is thickest. It is seen more often



FIG. 1.

on the incisal half of the length of the crown. It may be near the cutting edge of the tooth or anywhere from that point toward the gingival line. There may be a single groove or pitted line, or there may be two or even three of these. The teeth affected are the incisors, cuspids and first molars of the permanent set, and very rarely the first bicuspid. If it is very close to the cutting edge on the central incisors it may not appear on the laterals, but the occlusal surfaces of the first molars will be atrophied. This is because these parts of these teeth are in process for formation at the same time. If the groove is a little further removed from the incisal edge of the centrals, the lateral incisors will also be similarly affected. If it is a little higher still, the four incisors, upper and lower, the cuspids and the first molars will be affected, but the bicuspid will be free from injury. It is exceedingly rare that the bicuspid or the second or third molars are affected by atrophy, for the reason that the enamel and dentin of these teeth generally have not begun to form until after the age at which these effects are liable to occur. I have seen but four or five cases in which the first bicuspid were

marked, in all of my observations. The time of the occurrence of these injuries seems to be confined quite strictly to the first five years of a child's life.

In the engravings which accompany this article I have endeavored to illustrate some of the more severe types of these deformities. Fig. 1 represents what is known as the typical Hutchinson tooth, from the claims of Mr. Hutchinson, a specialist in venereal diseases in London, England, who insisted that this deformity was the result of inherited syphilis. In this case the middle lobe of the central incisors has failed of formation, and generally an ugly deformity of the occlusal surfaces of the first molars accompanies this type. In the molars there is likely to be little spiculæ of cusps sticking up much too close together, while the rest of the occlusal surfaces are much too small, crumpled together and sunken into the crown,



FIG. 2.



FIG. 3.

which, other than this, will be of full size and form. These teeth decay quickly in case there is a tendency to caries in the individual.

In the incisors, only the centrals are affected and the middle lobe only. This seems to have failed entirely and a deep, dark colored pit remains in its position. The mesial and distal lobes are formed of normal tissue, but they are drawn together in such a way as to give the incisal portion a rounded appearance, instead of the usual horizontal cutting edge. This seems to occur from the fact that the middle lobes of the centrals are the first to begin their calcification, which I have occasionally found just begun at birth, and if not begun then is usually begun within one year. The injury, therefore, occurs soon after the birth of the child from some cause which interferes with nutrition. In the incisors this form of atrophy is apt to be attacked by decay in this incisal pit very soon after the teeth have taken their places in the arch. They should be filled at once if decay is discovered. This particular form of atrophy is seen less frequently than others.

The occlusal surfaces of the first molars are occasionally seen badly atrophied when the incisors have escaped. Usually these have just begun their calcification at birth, and occasionally the calcification of the central incisors does not begin for one year after birth. In this case a severe illness may injure the molars and not injure the incisors.

Much the more common forms are those illustrated in Figs. 2 and 3, the illustrations showing rather bad cases. In Fig. 2 the deformity is confined to the cutting edges, apparently, of the central and lateral incisors above and below, and the four first molars. In the case here illustrated the whole of the incisal edge of the incisors is dwarfed and shortened. This dwarfed portion ends abruptly toward the gingival. This is common in these cases. In many there

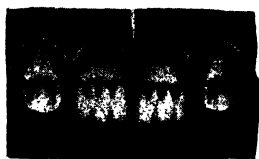


FIG. 4.

is more or less rounding down of the well-formed part of the crown to the deformed part, but often it is so abrupt as to form a square shoulder along which there is apt to be a series of sharp, deep pits. In the case from which this illustration is taken there are no pits whatever, and the deformity consists purely in the dwarfing of the incisal edges. But the whole of the occlusal surfaces of the molars was in very bad condition because of dwarfing that presented many abrupt fissures in which decay began almost immediately after they had come through the gums. In such cases as this the appearance of the teeth may be much improved by grinding away the dwarfed portion and shortening the cuspids a little to correspond with them. The teeth may appear a little short, but that is sometimes much less noticeable than the blemish.

In other cases occurring in the same locality and affecting the same teeth there may be but little dwarfing of the incisal edges of the incisors. The effect may be but a slight groove that may be smooth or more or less pitted, or in cases of a still milder type the

distinct groove may be lacking and a row of fine pits in the enamel will be the only deformity. Generally, the effect is more marked in the occlusal surfaces of the first molars than in the incisors.

In the case illustrated in Fig. 3 the injury has occurred later, beginning when the child was between three and four years old. The incisal portion of the incisors had already been formed, and, therefore, there is no dwarfing of this portion of the tooth. But there is a very marked groove encircling the crowns of the incisors and cuspids marked with pits, with smoothly rounded bottoms. Both the groove and the pits in the groove are abrupt toward the gingival and thin away toward the incisal. This is a constant characteristic of these deformities, which will be readily understood by a study of the calcification lines of Retzeus. The circular form of this deformity, as it passes from tooth to tooth across the front of the mouth, is well marked; indeed, it presents rather more of the circular form than usual, indicating especially that the cuspids were a little later than usual in their calcification, and for that reason the mark is nearer the incisal edge in proportion to the position on the incisors than it would otherwise have been.

It is not frequent that we see so severe a mark as here shown so high upon the labial surfaces of the incisors. It seems to be a general rule that the higher upon the teeth the less marked is the deformity. Pretty generally, in this position on the centrals, the mark is a shallow groove, more or less pitted, or a row of pits without a distinct groove.

In Fig. 4 I have illustrated a case that is somewhat out of the usual form in several particulars. When the impression for the cast from which the illustration was made was taken, the cuspids had not come through the gums, but one of the first bicuspids had erupted, and, to my surprise, showed a deep mark encircling the point of the buccal cusp. Also the history of the case shows that the lateral incisors did not erupt for nearly two years after the centrals had taken their places. In the centrals the incisal edges are fully formed, but there is a deep groove with rounded pits encircling the crowns at nearly mid length, while nearly the whole incisal half of the laterals is badly deformed. This indicates that the beginning of the calcification of these teeth was late, as compared with that of the centrals. This particular form of deformity of the lateral incisors is not very frequent, but yet a considerable number have been seen, quite enough to indicate a tendency to this particular deformity. In the common

vernacular this has been called the inverted finger nail deformity. If we imagine the finger nail taken up and turned with the convex side down and set back in the end of the finger, we would have something very like this deformity. The whole appearance of this case at the time of my observation of it, indicated unusual irregularity of the time of calcification and eruption of the different teeth. The first molars, both above and below, had already been destroyed by decay, beginning in the deformity of the occlusal surfaces.

Figs. 5 and 6 show a lower incisor with a double deformity.



FIG. 5.



FIG. 6.



FIG. 7.

Fig. 5 is a view of the labial surface, and Fig. 6 of the mesial surface. The dotted lines show the normal tooth form. The two, taken together, show the extent of the dwarfing of the crown of the tooth.

Fig. 7 shows an upper central very badly deformed. This is also a double deformity and was further injured by decay starting in pits in the abrupt portion of the groove nearest the incisal. The sharp, deep pits shown along the line of the second groove have not been caused by decay, but were there when the tooth came through the gums. These teeth are from different persons, and in both cases were extracted in order to remedy the defect with artificial teeth.

This seems to have been done under the mistaken notion that the roots of the teeth would not be good for artificial crowns. This was wrong. Extended observation shows that the roots of such teeth are as apt to be well-developed and good for crowning purposes as those of any other teeth. And when the crowns are so badly deformed as to render such proceedings necessary, artificial crowns should be resorted to rather than the removal of the teeth. There is a hope that in the future such teeth may be restored to a comely appearance by means of porcelain. In case the crowning involves the removal of the pulp, this should be delayed as long as possible in order that the roots may be fully formed and the apical foramen reduced to a small size. One should wait until the patient is sixteen to eighteen years old, and twenty would be still better.

#### ETIOLOGY.

Atrophy of the teeth is always caused by some illness that has interfered with nutrition at the time the particular parts of the teeth affected were in process of calcification. My attention was strongly called to this through a controversy between Hutchinson, of London, and Magitot, of Paris, who took opposite views some thirty or forty years ago. From Mr. Hutchinson's observations he was led to believe at first that all of these cases of atrophy were caused by inherited syphilis, while Dr. Magitot had come to the conclusion that they were due to eclampsia. This controversy led to a closer study of this whole subject, and finally Mr. Hutchinson yielded the point so far as to say that inherited syphilis was a frequent cause, and for many years held that the type which I have figured in Fig. 1 was always caused by inherited syphilis. That form, therefore, has been called the Hutchinson tooth.

I have followed this subject pretty carefully ever since, adding observation after observation until I have arrived at the conclusion that there is no special form of disease that is especially blameable for this affliction, but that any form of disease that seriously interferes with nutrition is liable to bring about this result, i. e., that it is not the particular form of disease, but that it is the condition of mal-nutrition that is the cause, no matter what the disease which has induced that condition. I have seen several cases of typical Hutchinson teeth that were certainly in no way connected with a syphilitic taint of any kind.



Some of these observations may be of interest. Mr. and Mrs. B., whom I had known intimately from childhood, had a child which seemed healthy at birth, but soon afterward became anemic and did very badly for two years. Growth was a failure during that time, and it was with great difficulty that the child was kept alive. In its third year, however, the child recovered and became strong and healthy and developed well. When the permanent teeth came through the gums nearly the incisal third of the centrals and laterals was badly dwarfed, the points of the cuspids had failed and the occlusal surfaces of all of the first molars were badly atrophied.

In another case a kinswoman was visiting at my house with a little girl two and a half years old. The child had not seemed very well of late, though she showed no particular form of illness. She would play much of the time, but seemed to get very tired. One day I was suddenly called to her and found her apparently dead, a condition that had been preceded by a violent clonic spasm. I instituted artificial respiration at once, and after a few moments there was a sigh and directly another, and within a few minutes the respiration and circulation was re-established. The child dropped to sleep almost immediately, while yet in my arms, and seeing that the breathing was sufficiently full and regular, I laid her on a couch, left her mother to watch her and went back to my business. She slept three hours, and when she awoke she was ready to play again. She remained rather dull for another month, when the condition seemed to pass away. There was but the one spasm. But when the permanent teeth came through they were deeply marked, corresponding with the time of this occurrence.

I attended a child two and a half years old through a severe case of typhoid fever. When the permanent teeth came through they were marked with a deep groove, irregularly pitted, similar to Fig. 3, but not so high up on the crowns.

An English woman brought her child to me on account of a very ugly marking of the incisors that had just come through the gums. In reply to my inquiries she could not remember that the child had had an illness of any kind. The boy had always been healthy and had escaped all of the infantile diseases. Being convinced that something had occurred that would have been noted, I asked her if the child had had any kind of an injury. This quickly brought out the statement that the child had had a severe burn, a scald, on the

side and back, that had healed slowly after much suppuration. Indeed, the child had been very ill for a month or six weeks. The time corresponded with the marks upon the teeth.

Cases like these, but every one different in detail, could be multiplied almost indefinitely. Scarlet fever, measles and whoopingcough come in for a large share in producing these marks. My observations for some time led me to believe that scarlet fever and measles are most often to blame for the rows of fine pits, but of late I have found so many of these following other forms of disease that I am led to doubt the distinguishing features of these marks. Certainly, hereditary syphilis comes in for its full share of these cases.

On the other hand we can not say, at least I can not, that marked teeth will result from this or that illness. If the hair falls out or the finger nails show a groove after an illness we are apt to find the teeth marked also. Very many of the cases that I have noted and watched for the coming of the permanent teeth have presented me with teeth without a blemish. Indeed, among all of the cases that I have noted and watched, the marked teeth have been the exception rather than the rule. Still, it remains true that when I have been able to obtain a satisfactory history the marked teeth have coincided in time with some form of disease that might well have interfered seriously with the nutritive processes. This history is not always easy to get, even among intelligent people. I once remarked to a lady in my chair that she had been very sick with scarlet fever when she was about two years old. She was very sure she had not, for she had never been told of such an occurrence. When I explained that accurate knowledge of the facts was of considerable scientific value she said she would question her mother regarding it. The next day I received a note saying her mother's story agreed with my supposition, both as to the particular disease and the date of the illness. I have seen many of these cases, however, in which I could find no history of the illness causing them.—*North Western*.

**BIRTHMARKS.**

(By H. Perkins Fitzpatrick, M. D., Chicago.)

The above caption is intended to cover all the congenital disfigurements of either vascular or pigmentary origin. The vascular nevi may be arterial and red in color, or venous and dark blue or purplish in color. The pigmentary nevi may be of so many different types, depending as it does upon the structural involvements, that it will be necessary to classify them. The most pronounced types are the nevi pigmentosus, the nevi pigmentosus piloris, and verrucasus.

Lately I have fortunately had one or more of these angiomas under treatment, directly or through others, who have kept me posted as to results of their treatment by my method of electrolysis.

One recent case, a very unsightly nevus pigmentosus piloris on the chin and portions of under lip, very deeply pigmented and thickly covered with a very profuse growth of stiff wiry hairs, I completely removed in three separate treatments. I am convinced now that it could have been done in less time had I not been extra cautious from fear of scarring. The young lady, being the daughter of Mr. B., one of our best policemen, and she herself being quite comely, I took special pains to give the best cosmetic results, even if at the expenditure of more time than at first intended. This growth was elevated about one-eighth of an inch above the surrounding skin, was very compact and hard and deeply pigmented; in fact, almost black. It was circular, and while perhaps somewhat larger, presented about the size of an impression on the skin made by a silver dollar. There was in excess of 400 hairs, every follicle seemingly having developed. During the first treatment I removed the hairs by electrolysis, using the same method as noted in previous articles in this journal. The inflammation from the destruction of the hairs being considerable, I deferred the actual removal of the growth for a few days until the inflammation subsided. In removing the growth I made numerous insertions through it, my intention being to reduce it to a level with surrounding skin. The procedure was the same as in removing moles and all elevated growths, as previously described in this journal.

The ensuing crust formation came off in about a week and I found upon examination that the nevus had been reduced to a level with the skin except in a few isolated spots. There were still a few hairs remaining, and I soon removed them and leveled off the few raised

places—during this third and final treatment. Examination quite recently shows practically perfect results.

Dr. McGavran, of Kansas City, Mo., wrote me some time last July respecting the treatment by electrolysis of the little girl Edna D—, whose picture we show herewith:



A few days ago I received from Dr. McGarvan another photo, also shown in this article, which illustrates better than words what patience, persistence and proper electro-surgical application will do for these nevi.

This was a difficult case to treat owing to the youth (10 years) and consequent restlessness and impatience of the child. The nevi extended around the outer angle of and into the nostril, as is clearly

shown in the first photo. It required great tact and much time to cover so sensitive an organ so completely, while the lines of demarkation are clearly outlined, showing the extent of the growth, its location and involvements and its structural appearance can not be understood until described. The surface covered was about  $2 \times 2\frac{1}{2}$



inches. It was elevated, soft, fungus and warty. It was completely covered with large and fine hairs. The color was red and brown, and its appearance was decidedly repulsive.

This growth was thoroughly treated by electrolysis twice, and in and around the nostrils three times. The treatment was similar to that described in previous case and the results show for themselves.

Having treated nearly every type of angioma, I have no hesitancy in asserting that there is none but can be permanently removed by electrolysis. The pigmentary nevi can be quickly removed and with perfectly cosmetic results. The vascular angiomas require numerous and frequent treatments, and owing to the extent of the capillaries in these growths and the length of treatment to remove them, the skin will be somewhat whiter than normal, owing to the destruction of tissue and loss of natural pigmentation through the eradication of all dermal capillaries.

My method of treatment for these abnormal defects is always by electrolysis.

I find the negative pole best for needle attachments in cases of pigmentary nevi.

For vascular angiomas a mixed treatment, using, first, a positive current and then following up with negative current is the most rapid, but no more effectual than the negative current alone. However, the positive pole, owing to its more rapid decomposition of tissue, and therefore greater possibilities of permanently scarring the patient, is used only in exceptional cases where we are obliged to sacrifice cosmetic after-effects for the sake of securing quick results. From a financial standpoint this treatment is not much of a success. Unfortunately, most of those coming for treatment are poor—too poor to remunerate the physician for his labor. But there is a great satisfaction to know you can do this work, and a greater satisfaction to actually do it.

No set rule can be given as to amount of electricity to use—ordinarily it is advisable to begin with the minimum amount (say from 1 to 2 milliamperes) and gradually increase to point of tolerance. Best results in my cases have been met with by using from 3 to 5 milliamperes.

It is surprising how much more electricity one patient will endure than another. Therefore, owing to this idiosyncrasy of patients you will lose some of them before you can have an opportunity to demonstrate what your treatment will do unless you bear in mind that it is necessary to begin with a minimum current.—*American X-Ray Journal.*

**TIN-CEMENT AND SPONGE-TIN.\***

(By Dr. Arthur Scheuer, Teplitz, Austria.)

Into the cavity, which need have no undercuts, I carelessly pack sponge-tin, nearly to the margin; it is quite the same whether with hand pressure or with the automatic mallet. Upon this I condense a layer of unannealed sponge gold—Watt's or Solila—then a layer of annealed sponge-gold, and finish with annealed gold foil or cylinders.

My further experiments have yielded the fact that a tin powder obtained from sponge-tin, when mixed with annealed zinc oxide, produces a cement powder, with certain qualities that render it of inestimable value, in its application to dentistry. This powder is of a light grayish color, with here and there the shimmer of a fine particle of metallic tin, and may be mixed with any good cement liquid, producing a cement with far greater adhesive properties than that of the ordinary cement powder alone. This may readily be seen from the fact that the ordinary cement when it had hardened upon a metal spatula can be removed with comparative ease, whereas in the case of tin-cement it is accomplished only with the greatest difficulty.

Tin-cement is also quite remarkable for its hardness, as well as for its resistance to the wear, due to attrition and to the attack of an acid saliva.

Tin-cement fillings neither lose their own color nor do they discolor the tooth, consequently the usefulness of this material is considerably extended.

A still larger field for the employment of tin-cement is furnished by the quality of entering into intimate mechanical combination with any brand of unannealed sponge gold; and these combination gold-fillings are in no particular inferior to the solid gold fillings.

The cavity should be filled nearly to the margin with tin-cement and in the last stage of its hardening should be condensed upon it a layer of sponge gold, annealed, and of any brand whatever; upon this is packed a layer of annealed sponge gold, and the filling is finished with annealed gold cylinders or foil.

The cavity is prepared in the same manner as for a porcelain inlay, and the impression taken with No. 30-40 gold foil, this being well burnished to the walls of the cavity. Allow the edge to overlay

Abstract of paper read before the Fourth International Congress at St. Louis, Mo., August 29th to September 3rd, 1904. Paper will appear in full in *Cosmos* when proceedings are published.

about  $\frac{1}{4}$ - $\frac{1}{2}$  M.M. and burnish carefully. If the foil at the bottom of the cavity is not torn, cut it with an excavator, fold the edges over and burnish to the walls. The bottom of the cavity should then be filled, either with sponge-tin, or, still better, with tin-cement, by means of which the impression is sufficiently retained in place, and that, through a material which combines readily with sponge gold.

The balance of the cavity being completely covered with gold foil, the difficulty of further manipulation and completion of the gold filling is reduced to a minimum.

### DANGEROUS TO BE SAFE.

There is danger in being alive these days. If you bathe you are liable to get pneumonia or weaken the constitution. If you don't bathe you will not be able to eliminate the poison from your system that accumulates daily and must be thrown off in some way. Drink beer or water and get typhoid fever. Drink milk and get tuberculosis. Drink whiskey, get jim jams or snakes. Eat soup, get Bright's disease; eat meat, get apoplexy; eat oysters and acquire toxemia; eat vegetable diet and deteriorate or run down the general system. Smoke cigarettes and go crazy. Smoke cigars or a pipe and get a cancer. Drink coffee or tea and get nervous prostration. Drink high wines and get the gout. Now the only way to be perfectly healthy is to eat nothing, drink nothing, smoke nothing. Try it for about six months and then lets hear from you.

I. F. STEELE, D. D. S.

Eagle, Grove, Ia.

### THE USE OF VASELINE IN PLACING A CROWN.

If a thin coating of vaseline or oil is spread over the cervical third, and proximal surfaces of a crown (whether single or used as an abutment for a bridge) the excess of cement comes away easily, and is not left under the margin of the gum to irritate that tissue. Of course the vaseline must not be allowed to get upon the inside of the crown.—*Dr. G. D. Goodenough, Gowie, Iowa. Dental Hints.*

### DR. CHARLES A. KITCHEN—RETIRED.\*

Dr. C. A. Kitchen of Rockford, Ill., whose photo appears as frontispiece and who has decided to retire from active practice, will spend the winter in Los Angeles, Cal., where he will still superin-

\*See frontispiece.



tend the clinics at the Dental College of Southern California, where he is also on the faculty as lecturer. Dr. Kitchen has practiced his profession for forty-two years. He is one of the professional men who grow young with age, if such an expression may be used to describe that quality of keeping up the study of new and better things. He leaves active practice with something more than the grind of daily toil marked upon him. He has made the most of his experience. He found his work a pleasant source of study.

We are indebted to Doctor C. J. Sowle for the following data:

Dr. Charles A. Kitchen was born at Troy, Ohio, Oct. 20, 1839. Enlisted in the Union army Sept. 19, 1861. Studied dentistry at Bloomington, Ill., and began practice at Toulon, Ill., but soon afterwards removed to Galva, Ill., where he practiced for a number of years. Removed to Rockford, Ill., October, 1874, where he practiced until the time of his retirement September, 1904.

Dr. Kitchen was for five years treasurer, served one year as vice-president and one year as president of the Illinois State Dental Society; was one of the original members, of whom only five remain.

Served on the state board of dental examiners for nearly nine years, associated with Drs. Black, Cushing, Judd and Harlan.

For the past four years he has spent the winters in Los Angeles, Cal, to be with his invalid wife, who passed away June 24, 1904.

The American Dental Journal joins with his legion of friends in wishing him many years of the rest and enjoyment he has so well earned.

#### CEMENTING AN INLAY.

Pressure on the filling will force out the excess of cement only to a certain degree, and ten pounds is nearly as effective as fifty, and one minute's time about as good as any more in reducing the amount left in the cavity, which is always more than enough to occupy the space left by the removal of the matrix when porcelain is used. This does not alter the general rule that cement under pressure adheres in proportion to the amount of pressure used upon it.—*Review.*

## **SOCIETY ANNOUNCEMENTS**

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### **AND REPORTS OF MEETINGS**

#### **NORTHEASTERN DENTAL ASSOCIATION.**

The tenth annual meeting of the Northeastern Dental Association will be held in Hartford, Conn., October 19, 20 and 21, 1904. Prominent men in the profession have promised essays and clinics. The exhibits will be an important feature. Remember the dates.

EDGAR O. KINSMAN, Sec'y.  
Cambridge, Mass.

#### **SOUTHERN CALIFORNIA DENTAL ASSOCIATION.**

The next annual meeting of the Southern California Dental Association will be held Oct. 24, 25 and 26 at Hotel Del Coronado, San Diego, Cal. This session will be largely attended as many important and interesting features will be presented to the society.

Los Angeles, Cal.

C. M. BENBROOK, Sec'y.



#### **OHIO BOARD OF DENTAL EXAMINERS.**

The regular semi-annual meeting of the Ohio Board of Dental Examiners will be held in Columbus, Nov. 29, 30 and Dec. 1, at Hartman Hotel.

Applications for examination should be filed with the secretary by Nov. 19. For further information address,

H. C. BROWN, Sec'y.

No. 185 East State Street, Columbus, O.

#### **FIFTH DISTRICT SOCIETY OF THE STATE OF NEW YORK, JEFFERSON COUNTY DENTAL SOCIETY.**

A union meeting of the Fifth District and the Jefferson County Dental Societies will be held at Watertown, N. Y., November 14 and 15, 1904. An attractive program is being arranged. Dr. E. C.

Kirk, of Philadelphia, will be in attendance. Dentists of northern and central New York are invited to be present.

E. E. HARRINGTON, Sec'y.

Jefferson County Dental Society.

#### **SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.**

Will you please insert in your Dental Journal the following notice for the months of October, November and December:

"The South Dakota State Board of Dental Examiners will hold its next regular session for the examination of candidates at Sioux Falls, S. D., Tuesday, December 6, beginning at 1:30 p. m. All candidates will be required to bring operating instruments, prepared to do all kinds of clinical operative work; also a bridge of not less than four teeth, including one Richmond and one gold shell crown invested ready to solder. All candidates must positively send their application to G. W. Collins, Secretary, Vermillion, S. D., not later than December 2."

Yours truly, G. W. COLLINS

#### **SOUTHERN ILLINOIS DENTAL SOCIETY.**

The Southern Illinois Dental Society will meet at Belleville, Illinois, October 25th and 26th. Papers will be read as follows:

"Reorganization of Illinois State Dental Society," by C. B. Rohland, Alton, Ill.

"Experience in Pulp Mumification," by C. L. Morey, Centralia, Ill.  
Discussion opened by R. J. Hood, Sparta, Ill.

Lantern Lecture, "The Pioneers of Dentistry and their Achievements," by Burton Lee Thorpe, St. Louis, Mo.

"What Would You Do?" by L. B. Torrence, Chester, Ill.

"Anaesthesia," by D. E. Morrow, St. Louis, Mo.

Discussion opened by G. A. McMillan, Alton, Ill.

Twenty-five excellent clinics will be supervised by J. M. Barcus, Carlinville, Ill.

#### **BANQUET TO DR. WATLING.**

Dr. John Watling who is known to every student of the dental department of the U. of M. for the past twenty years, and who is a general favorite of the alumni as well as one of the honored members of the Washtenaw County and State Dental Societies, will be tendered a banquet at his home in Ypsilanti, Mich., by the former society before he leaves for the south, where he expects to make his future home.

**MARYLAND BOARD OF DENTAL EXAMINERS.**

The Maryland State Board of Dental Examiners will meet for examination of candidates for certificates on November 8 and 9, 1904, at the Dental Department of the University of Maryland, Baltimore, at 9 a. m.

For application blanks and all information apply to

F. F. DREW, Sec'y,

701 N. Howard St., Baltimore, Md.

**THIRD AND FOURTH DISTRICT (N. Y.) DENTAL SOCIETIES.**

The fall meeting of the Third and Fourth District Dental Societies of the State of New York will be held at the "New Van Rennselaer," Troy, N. Y., October 18, 1904.

Dr. Edward H. Angle of St. Louis will give an illustrated lecture on "Some Things that Should be Better Known by Both Teachers and Practitioners of Orthodontia."

The committee is arranging an attractive program, and extends a cordial invitation to the profession to be present.

CHAS. E. ALLEN, Albany, N. Y.

E. B. RHINEHART, Schenectady, N. Y.

**ARKANSAS STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the Arkansas State Board of Dental Examiners will be held December 2 and 3, 1904, in Little Rock, Ark., for the examination of all applicants. Those having applied for examination will report to the secretary Friday morning, December 2, 1904, with rubber dam, gold, plastic filling-material, and instruments, to demonstrate their skill in operative dentistry. Any one who wishes may bring a patient; as far as possible patients will be furnished. The board reserves the right to select the cavity to be filled.

The examination to cover all branches of the dental profession.

No temporary certificate will be issued to any one. Examination fee, \$5.00. For further information write the secretary.

DR. A. T. McMILLAN, Secretary.

**MORGAN COUNTY DENTAL SOCIETY.**

The Morgan County, Illinois, Dental Society was organized Oct. 6 with the following officers: President, Dr. Charles B. Sawyer of Jacksonville; vice president, Dr. McKinney of Barry; secretary,

Dr. W. B. Young of Jacksonville; treasurer, Dr. Smith of Cass county; librarian, Dr. C. B. Powell of Jacksonville.

#### **CENTRAL TEXAS DENTAL SOCIETY.**

The Central Texas Dental Society was formally organized at Temple, Texas, Sept. 25, with seventeen charter members. As suggested in the name, Central Texas is the field included. At the meeting the following officers were elected to serve for the ensuing year: Dr. Pitt S. Turner of Belton, president; Dr. Sontag of Waco, vice president; Dr. J. M. Murphy of Temple, secretary and treasurer.

#### **JO DAVIESS COUNTY SOCIETY.**

The sixth regular meeting of the Jo Daviess County Dental Society was held at Elizabeth, Ill.

The program consisted of a paper on "Filling Root Canals of Teeth," by L. M. Cox, followed by a discussion led by J. E. Clark; and a paper by H. H. Howard on "Management of Children's Teeth," with a discussion opened by R. Roger.

Later a clinic was held, the following program being observed:

A Unique Method of Removing Pulp, F. Stryker; Immediate Root Filling Using "Pustolene," L. M. Cox; Extraction, W. R. Russell; Anaesthetic, J. E. Clark; Removing Pulp With Cocaine and Adelene Chloride, E. M. Clotfelter.

#### **ARMY DENTAL CORPS.**

Contract Dental Surgeon F. Homer Wolven, from sick in First Reserve Hospital, will proceed to Los Banos, Laguna, for duty. (July 29, D. Luzon.)

The leave granted Examining and Supervising Dental Surgeon John S. Marshall, Presidio of San Francisco, is extended to one month. (Sept. 2, D. Cal.)

Contract Dental Surgeon George L. Mason, will proceed to Fort McPherson, Ga., for duty. (Sept. 21st, W. D.)

Contract Dental Surgeon Wm. H. Chambers, from duty in the Department of the Gulf to San Francisco, for transportation to Manila, for duty. (Sept. 21st, W. D.)

Contract Dental Surgeon Franklin F. Wing, having reported his arrival at San Francisco, will proceed to Fort Riley. (Sept. 21st, W. D.)

Contract Dental Surgeon Edwin P. Tignor from further duty in

the Department of the Missouri, and will proceed to San Francisco, for transportation to Manila, for duty. (Sept. 21st, W. D.)

Contract Dental Surgeon Hugh G. Voorhies from further duty in the Department of the East, to San Francisco, Cal., for transportation to Manila, for duty. (Sept. 21st, W. D.)

Contract Dental Surgeon S. Davis Boak, having reported his arrival at San Francisco, Cal., will proceed to Fort Hancock, N. J., for duty. (Sept. 21st, W. D.)

Contract Dental Surgeon Ord M. Sorber, from duty in the Department of Texas to San Francisco, for transportation to Manila, for duty. (Sept. 21st, W. D.).—*Cosmos*.

### INTERNATIONAL DENTAL CONGRESS—REPORT OF COMMITTEE ON PRIZE ESSAYS.

To the International Dental Congress:

The committee to whom was given the consideration of papers competing for the prize offered by the Committee of Organization begs leave to make its report to the Congress assembled at St. Louis.

Your committee decided upon the following rules for its government in considering papers presented:

1. The subject-matter must be new and original.
2. The paper must not be overloaded with quotations.
3. It must, in every respect, be in accord with the character and dignity of the Congress.

Ten papers have been presented and carefully considered. Several of these are so nearly up to the standard adopted that your committee has found some difficulty in reaching a united conclusion. It has, therefore, been regarded as proper and just, in deciding upon the paper worthy of the prize, to mention several equally worthy of "Honorable Mention."

The paper entitled "A Study of Certain Questions Relating to the Pathology of the Teeth," prepared by Professor W. D. Miller, of Berlin, is, in the opinion of your committee, entitled to the highest honor that this Congress can bestow.

The prize, therefore, is conferred upon his work.

The paper entitled "The Pathology of Lime Salts in Nutrition," by Dr. Med. C. Rose, of Dresden, Germany, is regarded by your committee as one of the most thorough and valuable papers ever prepared upon this subject. It presents years of patient work, but

unfortunately does not and, as yet, cannot go beyond clinical observation.

Your committee, therefore, report for "Honorable Mention" in the order of merit, the following:

1. "The Pathology of Lime Salts in Nutrition," Dr. Med. C. Rose, Dresden, Germany.
2. "Constitutional Causes of Tooth-Decay, Erosion, Abrasion, and Discoloration," Dr. Eugene S. Talbot, Chicago, Ill.
3. "Anatomic Changes in the Head, Face, Jaws, and Teeth in the Evolution of Man," Dr. Eugene S. Talbot, Chicago, Ill.
4. "The Development of the Teeth of the *Sus Domesticus*," Zahnarzt Max Hirsch, Halle, Germany.

The balance of the papers, valuable for section work, have been transferred to the proper custodians.

Two papers were sent in for examination, but both too late to compete for the prize. One by Dr. Michaels, of Paris, not in the hands of the committee, and title unknown, and one entitled: (1) "Investigations Concerning the Corrosibility of Aluminum," and (2) "Applicability of Aluminum to Dentistry," a very full paper upon this subject, by Hof-Zahnarzt W. Pfaff, Dresden, Germany.

WILBUR F. LITCH,  
L. M. COWARDIN,  
JAMES TRUMAN, Chairman.

St. Louis, Mo., August 29, 1904.

#### **NATIONAL ASSOCIATION OF DENTAL EXAMINERS— REPORT OF COMMITTEE ON COLLEGES.**

It will be remembered that the relations between the National Association of Dental Faculties and our Association which had obtained for some time during the past were left intact at the close of the meeting of this Association at Asheville last year. It will be unnecessary to more than briefly refer to the things that have transpired in the National Association of Dental Faculties since that meeting. Suffice it to say that that body has been wrestling with itself as to whether it would, or even could, keep faith with the public and with this Association in the carrying out of the require-

ments of course for graduation which it had definitely set up in 1901 and put into actual operation beginning with the school year 1903-04.

It transpires that at least a majority of that Association, by official action, has seen fit, for reasons they consider paramount, to seriously modify their course requirements for graduation in a way and to a degree that your committee, as well as the profession at large, cannot interpret in any other way than as a most deplorable retrogression. It would appear, from what has thus occurred, that the National Association of Dental Faculties has clearly demonstrated that, no matter in how good faith it entered upon the establishment of the new standard in 1903-04, it was utterly powerless of its own unaided strength to permanently establish and maintain it.

After a careful, earnest canvass of the whole situation by correspondence and interview with many of the leading dental educators of this country, as well as with many leading and influential practitioners of experience and observation, and also backed by some of the best legal advice procurable, as to what was the duty of this deliberative body, composed as it is of the various State boards, endowed under their various laws with the judicial and discriminative power and duty of establishing and maintaining reasonable dental educational standards and requirements, your committee is fully convinced that the time is ripe for this Association to declare in no uncertain tones that we hold to be most essential and necessary qualifications of a prospective dental college student in order to enable him to assimilate and appropriate the great fund of scientific knowledge offered him in any of our properly conducted dental schools.

Your committee would therefore recommend that this Association establish at once, to go into operation not later than the opening of the school year of 1905-06, the educational requirement for admission to the dental college course of graduation from an accredited high school or its full equivalent, all examination of credentials and equivalents to be placed in the hands of an acceptable appointee of the State Superintendent of Public Instruction where not otherwise provided for by law.

In view of the present disturbed and unsettled conditions existing in dental educational circles, and with a belief in the wisdom of avoiding all unnecessary disturbance of standards at this time, your committee would further recommend that no change be made



at this time in the present requirements of this Association of not less than twenty-eight calendar months of college attendance for graduation.

CHARLES C. CHITTENDEN, Chairman,  
H. J. BURKHART,  
J. A. HALL,

Committee on Colleges of the N. A. D. E.

Unanimously adopted by the National Association of Dental Examiners at St. Louis, Mo., August 27, 1904.

**MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.**

A meeting of the Massachusetts Board of Registration in Dentistry for the examination of candidates will be held in Boston, Mass., Oct. 26, 27 and 28, 1904. All applications together with the fee of twenty dollars, must be filed with the secretary of the board on or before Oct. 19, as no application for this meeting will be received after that date. Application blanks may be obtained from the secretary.

G. E. MITCHELL, D. D. S., Sec'y.

25 Merrimack Street, Haverhill, Mass.

A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### **DR. W. C. MESSENGER.**

As we go to press we are informed of the sudden death of Dr. W. C. Messenger, Hartford, Conn., an esteemed dealer in the dental supply business. We have had the pleasure of meeting the doctor on several occasions; he has been located at Hartford many years where he built up a large and successful business. He was highly esteemed in his home city being a prominent member of many clubs and societies, devoted chiefly to charitable and educational purposes.

### **DR. JESSE FLOYD.**

Dr. Jesse K. Floyd, a young dentist and son of Mr. and Mrs. H. A. Floyd, was drowned Sept. 21 at Albany, Ga., while in swimming in Flint river at a point known as the "Box Yard" wash hole.

Besides his father and mother, Dr. Floyd is survived by his wife and two small children.

### **DR. A. C. STAMM.**

Cincinnati relatives are awaiting details of his death, which occurred at Guam, Ladrone Islands, where he was in the Government Hospital as a Dental Surgeon. He was a graduate of The Cincinnati Dental College.

### **DR. B. O. CONRAD.**

Dr. B. O. Conrad, a retired dentist, aged 72 years, died October 3, at Rochester, N. Y., as the result of a stroke of apoplexy.

### **DR. R. F. STRINGER.**

Dr. R. F. Stringer, a Rogers, Ark., dentist, is dead from the effects of a stroke of paralysis.

# MISCELLANEOUS

## TO PRESERVE RUBBER DAM.

When pieces of rubber dam are washed and put away, they should be sprinkled with talcum or soap stone powder.—*Dental Hints.*

## AN ASTRINGENT MOUTHWASH.

One ounce of listerin will take up one ounce of tannic acid, making a very strong astringent mouthwash.—*Dr. Grady, Dental Cosmos.*

## TO AVOID SOLDER RUNNING ON ANY GOLD SURFACE.

Mark with a lead pencil, preferably a soft one, where you do not wish solder to flow.—*Dr. Geo. Stevenson, Forum.*

## A CLEAN ASEPTIC DRESSING.

Dip a piece of cotton in an alcoholic solution of boric acid; burn the alcohol out.—*Hugenschmidt, Dental Cosmos.*

## TOOTH POWDER.

Two ounces of pulverized borax mixed with four ounces precipitated chalk, add one ounce each of powdered myrrh and pulverized orris. Sift through fine bolting cloth and bottle for use.—*Exchange.*

## CROWN CAP SWAGE.

Place a ferrule on the end of a piece of pine wood of proper size and use as a counter die. After using a few times the ferrule can be forced up on the stick and the used part cut off.—*Dr. J. Mills, Review.*

## CARBOLIC ACID FOR TEMPERING.

M. Levat (a Frenchman) recommends carbolic acid for steel tools, claiming more elasticity and pliability than is derived from tempering with water.—*Popular Mechanics.*

## TEMPERING RECIPE.

For small drills, chisels, etc., for very light work, says W. F. Smith of Baltimore, heat to a dull red and cool in a bar of common soap. The temper will be about right and no drawing will be required.—*Popular Mechanics.*

**PROTECTIVE ASSOCIATION.**

The dentists of the state of Iowa took measure at a meeting to form a protective association for defense in cases of suits for blackmail and to escape a certain class of alleged grafters that have preyed on the practitioners for the past years.—*Dental Hints*.

**LEAD WASHER FOR THE HYPODERMIC SYRINGE.**

Use thin lead washer in the needle joint of your hypodermic syringe—it will make a water-tight joint and does not have to be removed for a long time; besides it makes an aseptic joint.—*Stansbury & Alexander, Lexington, Miss. Dental Hints*.

**FOR PAIN OF ANY KIND.**

R. Tr. capsicum, tr. ginger, tr. opium, brandy, tr. rhubarb, of each one ounce.

Mix. Dose, five drops every hour to relieve pain of any kind. This is the celebrated "Sun Cholera Cure."—*Medical Summary*.

**TO RENOVATE HARDENED MOULDINE.**

Place in a glass and cover with water to which a half-teaspoonful of glycerin has been added. Leave in a warm place until the water evaporates. The water dissolves the lumps and the glycerin thoroughly permeates the mass; a little kneading will make it as good as new.—*Dr. P. W. Smith, Dental Digest*.

**BANDING A TOOTH.**

In banding with gold a tooth having an amalgam filling, burnish over the portion of the gold coming in contact with the amalgam a piece of platinum foil and solder before bending the gold, thus obviating the danger of weakening the band by permeation of the gold with mercury from the amalgam.—*Dr. A. Drake, Dental Record*.

**CROWNING LIVE TEETH.**

It has been my practice for many years to use a crown with band and without post in anterior teeth whenever devitalization has not been affected, for the reason that in all cases where it can be done upon the live stump the danger of the band coming into sight after a year or two does not exist; it is only the devitalized root that lengthens in that way, and especially in the mouths of patients of mature years.—*Geo. F. Grant, International Dental Journal*.

### IMPRESSION TAKING.

Where impressions are taken of mouths having a high arch, I have found it very helpful to insert a little plaster with a spatula before placing in the cup. It avoids the necessity for using a large bulk of plaster in the cup and simplifies the operation. In partial lowers, also, this same plan works admirably. But no matter what the case may be, if an accurate impression is desired plaster is by far the best material.—*Dr. Gaylord, Brief.*

### PLACING CLASPS ON PLATE.

After the teeth have been ground and articulated, the plaster tooth to be clasped is broken off at the gum line and replaced with a very thin film of wax. The clasp, having been previously fitted, is cemented to the plaster tooth and the case flaked. In separating after boiling the plaster tooth and clasp come away with the plate teeth, and the spur of the clasp is then packed the same as the pins.

Enough time should elapse between the cementing of the clasp and the boiling out to allow the cement to thoroughly set.—*Dr. J. Arthur Standin, Cosmos.*

### TAKING LOWER IMPRESSIONS.

When taking an impression of the lower jaw, in either wax or modeling compound, it is necessary that the cheek on each side be pulled out by inserting the finger along the buccal side of the impression tray so as to lift out the fold of the muscles that may have been caught under the edge of the tray and material. The patient should also be instructed to raise the tongue from the roof of the mouth and extend it, so as to prevent the impression from impinging upon the muscles beneath the tongue.—*Dr. J. F. Wessels, Brief.*

### PORCELAIN CUSPS AND SHRINKAGE.

One feature has been overlooked in discussing cusp carving; that is, shrinkage. When we take into consideration the fact that even the highest grade porcelain will shrink one-fifth more than the low fusing one, that is a very important feature. My method has been to make a fold of plaster somewhat larger than I want the tooth to be, pressing the material in well, and when this is dry open the halves of the plaster; one then has the porcelain more easily formed than by carving, and more accurate, at the same time allowing for shrinkage.—*Dr. D. Gense, Cosmos,*

# DENTAL PATENTS

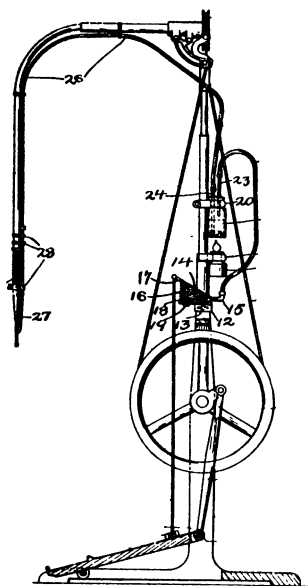


Fig. 1.

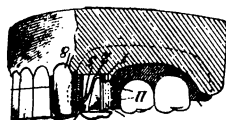


Fig. 2.

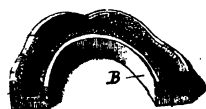


Fig. 3.

767,553. Dental trough. Percy Edgelow, London, England. Filed Dec. 7, 1903. Serial No. 184,164. (No model.) Fig. 3.

Claim.—In a dental appliance for applying medicaments to the gums and teeth, the combination of an outer wall and an inner wall and a mutual base all of soft rubber, with a spongy rubber lining secured thereto.

770,066. Dentistry. Daniel T. Hill, Syracuse, Neb. Filed April 13, 1904. Serial No. 202,893. (No model.) Fig. 2.

Claim.—1. A means for securing an artificial tooth in place, comprising a crown adapted to fit over a natural tooth, a locking device comprising a box-like member secured to the crown, a V-shaped spring adapted for locking engagement in said box-like member, the rear wall of said box-like member having a vertical slot, a web on the spring member for passing through said slot, and adapted to be anchored to a tooth-carrying plate, and a crown on a member of said spring member.

767,705. Attachment for dental engines. Isidor Lyman, Cleveland, Ohio. Filed July 1, 1903. Serial No. 163,887. (No model.) Fig. 1.

Claim.—1. The combination with a dental engine of an attachment, comprising a bellows, a slideway formed on the pedal of said engine, a carriage arranged to move freely in said slideway, means for locking said carriage in said slideway and means for operatively connecting said carriage with said pump so that actuating the pedal of the dental engine will operate the pump.

2. The combination with a dental engine of an attachment comprising a bellows, a block secured to the pedal of the dental engine, a slideway formed in said block, teeth arranged in said slideway, a carriage arranged to travel in said slideway, a pawl mounted on said carriage and arranged to engage said teeth, means for lifting the pawl out of engagement with said teeth and a cord connecting said bellows and said carriage, substantially as described and for the purpose set forth.

3. The combination with a dental engine of an attachment comprising a bellows, a block secured to the pedal of the dental engine, a slideway formed in said block, holes formed in the bottom of the said slideway, teeth removably secured in said holes, a carriage arranged to travel in said slideway, a pawl mounted on said carriage and arranged to engage said teeth, means for lifting said pawl out of engagement with said teeth and a cord connecting said bellows and said carriage, substantially as described.

4. The combination with a dental engine of an attachment comprising a bellows, a block secured to the pedal of said dental engine, a slideway formed in said block, teeth arranged in said slideway, a carriage arranged to travel on said slideway, a pawl mounted on said carriage and arranged to engage said teeth, a stud mounted in said carriage and resting on said pawl and a cord connecting said bellows and said carriage, substantially as described and for the purpose set forth.

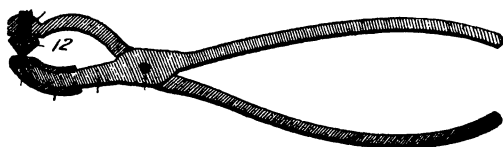


767,469. Combined toothbrush and dentifrice receptacle. Arthur W. Ziegler and John W. Slater, Berlin, Wis. Filed Jan. 23, 1903. Serial No. 140,242. (No model.)

Claim.—1. In a toothbrush, a hollow handle provided with a longitudinal open slot; a tubular cylinder located within said handle provided with a longitudinal slot adapted to register with the slot of said handle; means for closing the slot of the interior tubular cylinder; a piston located in said interior cylinder and means connected with said piston for communicating movement to the same through the slots of said handle and cylinder from the exterior, substantially as set forth.

770,162. Dental tool. Rolla M. Chase, Bethel, Vt. Filed March 24, 1904. Serial No. 199,794. (No model.)

Claim.—1. In a device of the character described, the combination of a pair of levers pivotally connected intermediate their ends and each having a



jaw at one of its ends, and a cone-shaped punch or die of elastic material upon one of said jaws, substantially as described.



769,758. Dental instrument. John Mills, Brantford, Canada. Filed June 20, 1903. Serial No. 162,404. (No model.)

Claim.—1. In a dental instrument a main casing having a pair of oppositely set cone bearings formed therein; in combination with a rotary part having cones thereon adapted to engage the bearings, one of the cones being longitudinally adjustable on the said rotary part; a cylindrical extension of one of the cones having a peripheral cam-groove formed therein, the casing being notched at one side to expose the cam-groove; a front casing sleeved over the main casing; a tool socket-piece slidably carried in the said front casing; a finger on said socket-piece fitting the notch in the main casing; and a pin on said finger engaging the cam-groove, substantially as described.

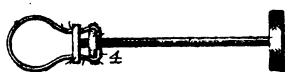


Fig. 5.



Fig. 4.

769,426. Dentist's implement. Lewis H. Zeran, Rockford, Iowa. Filed Oct. 13, 1903. Serial No. 176,817. (No model.) Fig. 4.

Claim.—1. In a disk mandrel, a stem, a crescent-shaped head on said stem, and means opposing said head for holding a disk there-between.

767,852. Dental matrix. Zeph H. Tibbetts, Highland, Ill. Filed March 5, 1904. Serial No. 196,646. (No model.) Fig. 5.

Claim.—In a dental matrix, the combination of a loop-band having arms, a head provided with a screw-threaded opening, prongs carried by said head and passing through said band-arms, a clamp-plate slidably fitted within said band-arms immediately around the tooth and a screw-rod operating in said head and having connection with said clamp-plate, substantially as set forth.





Fig. 6.



Fig. 7.

769,667. Dental suction-plate. Edgar C. Reed, Londonville, Ohio. Filed Oct. 23, 1903. Serial No. 178,185. (No model.) Fig. 6.

Claim.—The herein specified method of producing suction cavities or air chambers in dental suction dentures, the same consisting of shaping and securely fastening a pliable metallic suction plate of substantially cardioid form and having a continuous flange protruding from its upper outer edge and having a soft, flexible, vulcanizable rubber band surrounding the outer edge of said plate, beneath the flange, and a portion of said rubber being exposed or protruding continuously around said suction plate, upon a plastic model, then conforming the material comprising the denture to the model over the suction plate and the exposed portion of the rubber form, then flasking the model and attached plate and rubber form, and then vulcanizing, whereby the rubber form is secured to the rubber or other material comprising the denture by uniting with the exposed portions of the rubber form, then removing denture from the model and the suction plate from the denture, and then finishing in the ordinary manner, substantially as set forth.

769,631. Artificial tooth. Frank L. Priest, Dallas, Texas. Filed July 24, 1903. Serial No. 166,832. (No model.) Fig. 7.

Claim.—1. An artificial tooth having on its back a mesh A of woven wire provided with a series of spiral members embedded at one side in the body of the tooth and having portions projecting beyond the face of the tooth, whereby the mesh may be partially embedded by baking in the tooth and a portion thereof will project in the form of coils for connection with the body of the denture.

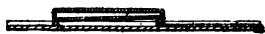


Fig. 8.

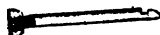


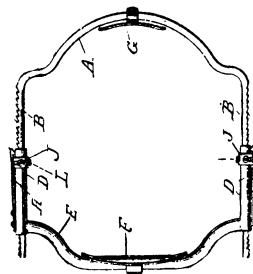
Fig. 9.

767,743. Dental appliance. James D. Ford, Somerset, Ohio. Filed Dec. 2, 1903. Serial No. 183,463. (No model.) Fig. 8.

Claim.—1. In a device of the character described, the combination with a base-plate having guide-flanges of a tray detachably connected to the base-plate and having an integral shoulder at one edge, a slide mounted upon the tray and base-plate, and a spring packing-plate integral with the slide and normally bearing upon the shoulder.

770,115. Dental appliance. Fletcher C. Rood, Walla Walla, Wash. Filed June 8, 1904. Serial No. 211,624. (No model.)

Claim.—1. A dental appliance consisting of a root facer or trimmer, comprising a cutter for facing a root, and a pin secured at one end loosely in connection with the cutter, and adjustable on said connection to different angles relative to the axis of the cutter.



768,697. Dental appliance. Morris I. Schamberg, Philadelphia, Pa. Filed April 19, 1902. Serial No. 103,809. (No model.)

Claim.—1. An instrument of the character described, comprising two members adjustably secured to each other; means for securing said members in their adjusted position; and bearing plates carried by said members, substantially as and for the purpose described.



## PERSONAL AND GENERAL

**Fire.**—Dr. J. A. Leggett of McHenry, La., lost both office and residence with almost entire contents Sept. 27th.

**Robbed.**—Dr. E. A. Kohler, Chicago, lost gold and other material to amount of \$50 by sneak thieves, who entered his office through a window.

**Wedded.**—Dr. J. C. Grant, a prominent dentist at Athens, Tenn., and Mrs. Nannie B. Spears, of Rogersville, Tenn., were married in Bristol, Sept. 14.

**Dentist Sued for Slander.**—Edward W. Foster, a salesman, sued Dr. S. W. Ridgeway, of Philadelphia, a dentist, for \$10,000 damages for defamation of character.

**Dr. McArthur Appointed.**—Governor Terrell has appointed Dr. C. Z. McArthur of Fort Valley, Ga., a member of the state board of dental examiners for a full term of four years.

**Married.**—Dr. John L. Greer, one of the dentists at Rutherford, Va., and Miss Clara Wilkins, one of the most accomplished teachers of that place, were married August 31, and will make their future home in that town.

**Married.**—Dr. Carl E. Ritchey, who graduated from the Keokuk Dental College recently, was married Sept. 28 at New London to Miss Mary E. Giese. They will spend their honeymoon at St. Louis. The doctor is located at New London.

**Married.**—Cards have been received announcing the marriage at Estherville, Iowa, of Miss Helen Miles, a former well known young lady of Cedar Rapids, to Dr. Wetherell, a dentist of Estherville, where the couple will make their future home.

**Dentist Robbed.**—Robbers entered the dental office of Dr. H. L. Davis at Muncie, Ind., and took everything in sight. There is no clew. Only a few weeks ago a dental thief was abroad and a traveling man was arrested as a suspect, but later released.

**Incorporated.**—The John C. Lindsay Co., New York, to manufacture physicians' and dentists' supplies; capital, \$5,000. Incorporators and directors for the first year: John C. Lindsay, New York; Edwin M. Baldwin, William B. Dolston, Brooklyn.

**Robbery.**—The dental rooms of the Drs. Mabree at Galesburg, Ill., were entered some time during the temporary absence of the doctors and gold and dental materials to the value of some \$30 carried away. The property taken consisted of gold crowns and several bridge teeth.

**Tooth Causes Death.**—Thomas McCurdy, aged fifty-four years, one of the most prominent and best known citizens of Marysville, O., died Oct. 4 from cancer of the jaw, caused from a tooth which had been broken off in an effort of a dentist to remove it some years ago.

**Dental Forceps Stolen.**—August Ehrhart, 48 years of age and a stove repairer by occupation, was taken into custody on a warrant charging petit larceny. The complainant is Dr. C. O. Imobersteg, who avers that Ehrhart stole from him three pairs of dental forceps and one pair of bone cutting forceps of a total value of \$10.

**Campbell-Amerling.**—Dr. Noble Campbell, a well-known Erie, Pa., dentist, was united in marriage to Miss Marie Amerling, Sept. 20, at the home of the bride. Rev. Hugh L. Hodge performed the wedding ceremony. After the ceremony the bride and groom left on their wedding journey to Philadelphia and other eastern points.

**Denver Dentist Honored.**—Among the Colorado Odd Fellows who will be highly honored by the grand lodge of that order when it meets here next month is Dr. J. M. Norman of Denver, grand secretary of the organization. The grand decoration of chivalry will be bestowed upon Dr. Norman with the most elaborate and impressive ceremony during the convention.

**The Khedive's Dentist.**—Dr. James F. Love, who has been for twenty years one of the best known Americans in Egypt, is at his old home, Philadelphia. He is dentist to the Khedive, but says he has Abbas' teeth in such condition that he can be spared until after election. He never has surrendered his American citizenship. He came over especially to vote.

**Dentist to be Fire Fighter.**—Mayor A. A. Taylor's appointment of Dr. W. B. Fahnestock as fire chief of Wyoming, O., will be contested by several councilmen. The councilmen state that they prefer some one who will be in the village all the time. Dr. Fahnestock is a dentist, with offices in Cincinnati. Though the position pays but \$100 per year, there are several candidates.

**Huntsville, Ala., Dental Society.**—The Huntsville Dental Society was organized Sept. 15 by the members of the profession of dentistry in that city. The officers elected are: Dr. W. D. Allen, president; Dr. Inzer B. Wyatt, vice-president; Dr. Frazer L. Adams, secretary and treasurer. The other members of the organization are Drs. Drakeford, Sparks, Kranz, Buckner and Coyle.

**Dentist a Suicide.**—Dr. Friend A. Phelps of South Norwalk, Conn., committed suicide some time in the night of Sept. 28th, at Hartford. His body was found at 1 o'clock the next afternoon lying on the bed. He had shot himself through the temple with a revolver. It is thought that he was despondent over illness. A rambling note left by him hinted at financial difficulties as well as poor health.

**Redding Dentist Engaged.**—The engagement of Dr. C. C. Corbier, a dentist of Redding, Cal., to Miss Josephine C. Rider, an accomplished school teacher of Napa, who is interested in the Yellow Rose Mine in northern Trinity County, where the couple first met last summer, has been announced. The wedding will take place at the home of Miss Rider's parents in Napa on a date not yet given out.

**Thieves** — Burglars paid their annual visit to the dental office of Dr. C. J. Lyons at Adrian, Mich., and secured about \$25 worth of gold. The job is thought to be the work of the same men who made the big haul at Jackson. It was a bold job as the police were on the four corners, only three or four stores away, all night. For several years the Adrian dentists have been touched once a year by these gold leaf thieves.

**Bankrupt.**—Alexander E. Black, a dentist, of New York, has filed a petition in bankruptcy with liabilities of \$2,770, and assets of \$50 in outstanding accounts, \$100 in tools, which are exempt, and forty shares of stock of the Cole-Black Coal Company, which he subscribed for, but was never issued. He has only two creditors: The Cole-Black Coal Company, \$800, balance of subscription, and Elizabeth T. Bell, \$1,970.

**Dentist a Song Writer.**—Dr. Frank A. Green, the Geneva, O., dentist is the composer of a popular song which has just been copyrighted. It is entitled, "My Ohio Home," words and music by himself, and extolls the beauties of the old Buckeye State. Nearly every other state in the union has had some song characteristic of each particular state, but this is probably the first to sing the praises of Ohio. The song has won much praise from the few persons who have seen it.

**Cupid in Iowa.**—The marriage has been announced of Dr. Frank T. Armstrong of Radcliffe, Iowa, and Miss Louise Feet of Alden, the ceremony taking place at the home of the bride's mother in Alden. Dr. Armstrong is a member of the dental profession and is located at Radcliffe. The bride is a popular young lady who has been a resident of Alden most of her life and has been a successful teacher. The couple will be at home to their friends in Radcliffe after November 1st.

**Near to Death.**—Dr. Viola Swift is at the point of death at her home in Cincinnati, where she is suffering from a complication of diseases. Dr. Swift was the first woman dentist in Cincinnati and was a pioneer in the profession in America. She was president of the National Press Association, organizer of the Rathbone Sisters, a member of Pocahontas branch of the Red Men, Knights of Fidelity and of the Hamilton County branch of the National Woman's Suffrage Association.

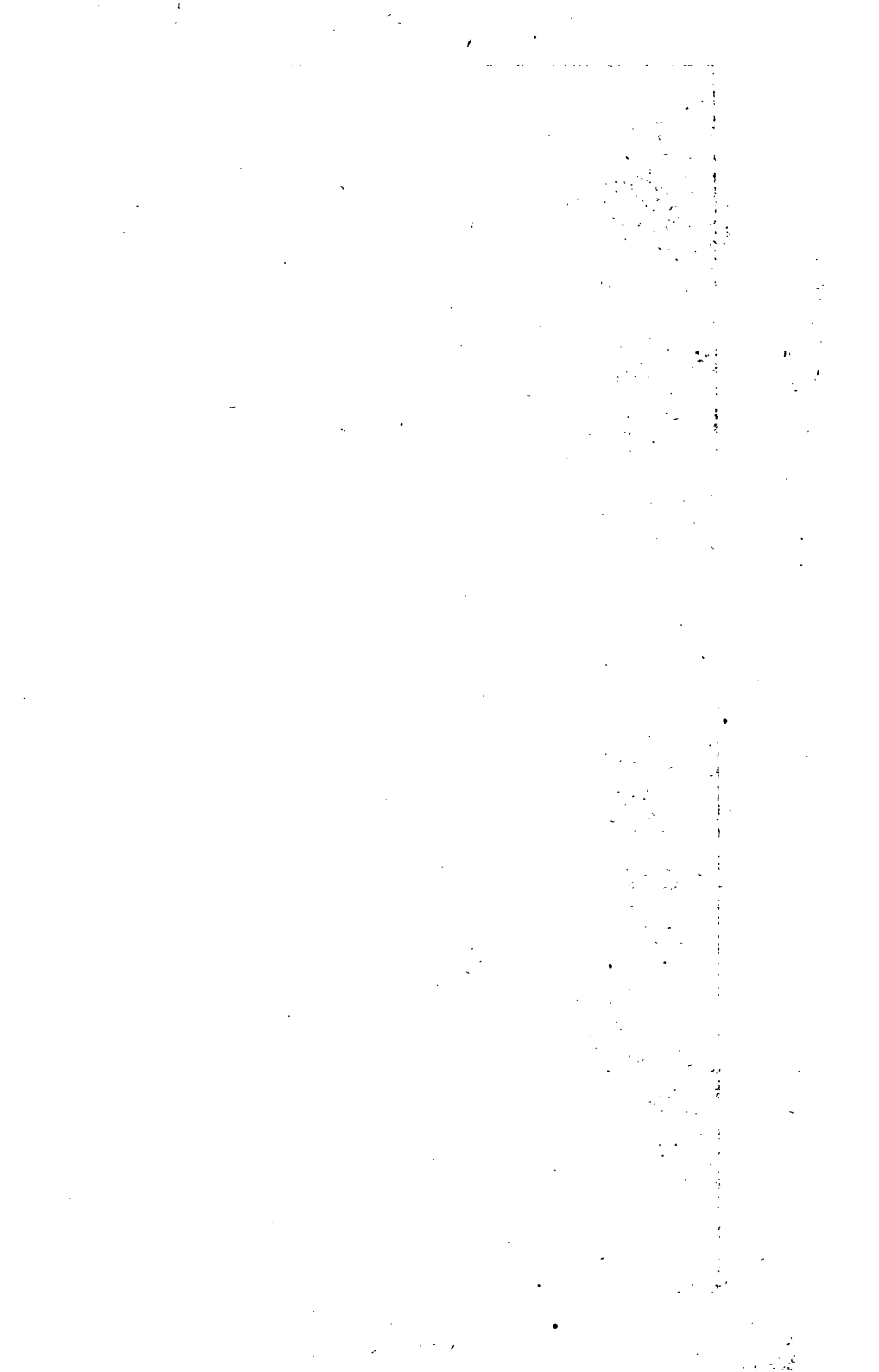
**Ordered for Duty in Philippines.**—Dr. William H. Chambers, for some time one of the officers of the Department of the Gulf as contract dental surgeon of the army, has been ordered to the Philippines to take the place of Dr. George L. Mason, who has been holding the same position in the Department of the Philippines. Dr. Mason is now on his way home, and as soon as he arrives in San Francisco he will go to Atlanta to report for duty to the Department of the Gulf, to which he has been already assigned.

**Sultan With Diamond Teeth.**—The most notable figure nowadays in the West End is the Sultan of Lahore, who is stopping at the Hyde Park Hotel, London. He constantly is seen driving out in his automobile. The machine is glorified with gorgeous crests and coats of arms, but it is the owner himself who always is the center of general attraction. The reason is that the sultan possesses a unique set of teeth, all his own, all the front ones being set in diamonds encircled in gold, and the effect at close quarters is astonishing.

**Dental Hospital.**—At a special meeting of the trustees of City Hospital, at Worcester, Mass., a vote was passed favoring the establishment of a dental department in the hospital, as a part of the out patient equipment. It is intended for the accommodation of the poorer people, and it was suggested that it be opened three afternoons a week, Tuesdays, Thursdays and Saturdays. It was decided to have six dentists in the department, appointed from the younger dentists of the Worcester dental offices, to work for a salary a few hours each week.

**Nearly One Hundred Years Old.**—Dr. John B. Rich, whose handsome portrait is printed in Sunday's New York Sun, was from 1836 to 1898 the fashionable dentist of New York. Now he is the president of the Microscopical Society and of the Hundred-Year Club, the author of important scientific works, and, at ninety-four years of age, a marvel of manhood, his mental faculties unimpaired, his body erect and his eyesight so good that he never uses glasses except for reading. His recipe for longevity is cheerfulness, moderation in all things and a little exercise every day.

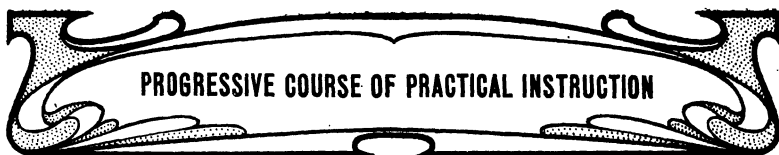
**Memphis Dentists Prepare to Protect Themselves from Loss.**—At the regular monthly meeting of the Memphis Dental Association in the office of Dr. C. J. Washington, Oct. 7, a protective branch was formed and placed under the secretaryship of Dr. N. W. Sherman. This branch was formed to protect the dentists who are members of this organization against the patrons who have a reluctance to pay their bills. When one of these persons who is in arrears with one dentist calls on another who belongs to this association he will find service refused him until his bill is paid at the first dentist's office. By this means the association hopes to protect its members from the poor payer, as each delinquent is immediately listed with the secretary. This progressive body is composed of leading dentists of the city and its officers are: Dr. J. L. Mewborn, president; Dr. Justin N. Townsend, vice-president; Dr. Richard Watson, secretary.





Manufacturers and Dealers with their assistants at Fourth International Dental Congress, at St. Louis, August 29 to September 3, 1904.





## **PROSTHETIC DENTISTRY.**

**By B. J. Cigrand, B. S., M. S., D. D. S.**

**(Professor of Prosthetic Dentistry and Technics, College of Dentistry,  
University of Illinois)**

### **CHAPTER XX.**

The oral cavity is that aperture by which food is received into the body and in which by its peculiar arrangement of muscles, nerves bones (teeth), mastication, speech, taste and respiration are performed. This cavity is subdivided into the lingual cavity and vestibule. The former being that portion of the oral cavity in which the tongue moves during the process of speaking, the vestibule being that portion between the teeth, lips and cheeks or corresponding to the mouth external to the teeth and internal to the muscles of the cheeks and lips.

Consequently when all the natural teeth are removed, the lingual cavity gets larger, as does the vestibule, since the teeth before extraction acted as the partition, and this being eliminated and absorption setting in enlarges both vestibule and lingual cavity, while the oral cavity practically remains unchanged.

Now, it is the function of a perfect denture to restore the natural size of both the vestibule and lingual cavity, since any encroachment will tend to interfere with some office of the mouth.

It remains a difficult problem to determine the exact restoration of the lost parts, be they dental organs or alveoli, but artificial dentures cannot completely or perfectly restore this loss and waste, since the change continues and consequently the artifice at best would require remodeling after a period of five or seven years. Besides nature, regardless of the surgeons—subtractions—inaugurates a process of absorption, shrinkage and change. The jaws in

old age yield to systemic absorption and even the angle of the jaw is disturbed in this era of absorption.

These changes necessarily modify any definite rules regarding articulation and occlusion, and hence we can deal more accurately with principles. Again we have a variety of jaws known and named by Oliver W. Holmes, as the infantile jaw from its analogy to the undeveloped maxilla of childhood, and these require special attention since they operate differently than the recognized normal jaw. Many adults possess this form of inferior maxilla, and with it we usually find a protrusion of the lower front teeth. Voltaire called it the English jaw in contradistinction to the square and angular Saxon jaw. These forms require comparative study and are not clearly understood.

The careful study of the anatomical arrangement of the teeth of the lower animals will teach us valuable lessons. In fact comparative anatomy alone stands as the basis of proof concerning the physical outlines of teeth as relates to disposition of the individual and character of the foods. Hence the prosthesis must be conversant with the basic temperament matter to substitute dentures which are in harmony with the appetite of the patient.

The morphology of the lower third of the face does not at present receive sufficient attention, and in fact if a chair were created on odontography it would contribute a most essential element in the dental student's education.

Man's disposition is as much evidenced by the choice of his foods as by the selection of his work. The two are practically one. The choice of his food is in perfect harmony with his physical and mental inclinations, and consequently the former is the energy with which he accomplishes the latter. Besides the character and outline of his teeth, their moving or occlusal surfaces indicate to a certainty the preferences of his foods. This is best studied in the lower animal kingdom, since they live in perfect naturalness and have not been differentiated by conventionalities. The sharp, pointed teeth of the canine family, with jaws that have simply the ginglimoid movement proclaim to those who understand the text theorem of mastication that meat is their favorite sustainer. The flat and cusplless molars of the grain and cereal eating animals state clearly the disposition of the animal. Comparative anatomy really forms the system of instruction of perfect knowledge of human

anatomy. The temperaments of people in consequence have a strong resemblance, if not relationship, to animal disposition.

It was accurate knowledge of the physical outlines of a single tooth which made it possible for Professor Owen, the distinguished zoologist, to designate a curious fossil which had been dug up and submitted to the Hunterian Museum, to say: "That is the third molar of the lower jaw of an extinct specie of rhinoceros." It was a similar familiarity with comparative features which allowed George Cuvier in 1804—one hundred years ago—to construct an entire animal skeleton after having been given a single bone. His knowledge of existing animals was so extensive that he was the first comparative anatomist to proclaim the scientific deduction that all animal creation has structures, to conform with habit, food and climate, and hence all bones are founded on an exact theorem and are formed to harmonize with its kind." It was this same department of learning which astounded the world when Levator, after visiting the catacombs of Rome, asserted that in one department the citizens were worshiping the supposed bones of saints, and he recognized that by the shape of the skull, character of the jaws, that the osseous remains must be those of criminals. The Roman officials made documentary inquiry and searched the archives and finally discovered that Levator was right, that during the later years of the Christian war, the greatest criminals were hidden away in the catacombs.

The first instance where a skeleton was given dental identity occurred in this country something less than a century ago.

The great patriot and hero, Paul Revere, an engraver by profession, devoted much time to the prosthetic division of dentistry. He constructed metal base dentures and was much interested in carving and designing artificial teeth.

When the remains of the patriot and soldier, Dr. Warren, were removed from Bunker Hill battlefield to their present resting place, it was Paul Revere who made the identification—recognizing the partial denture which he had constructed some years previous to the general's death, and minutely described his natural remaining teeth.

The minute dental anatomy must be recognized and understood if the dental student of the future hopes to be a factor in professional affairs. And we practitioners have a great work to perform if we hope to keep abreast with the other liberal professions.

When a kindred calling advises us or contributes to our welfare and glory let us be sufficiently noble to appreciate it. You possibly remember when in 1880 Professor James Orton, teacher of natural history at Vassar College, proclaimed in his writings that "teeth are appendages of the skin and do not belong to the skeleton, and like other superficial organs are liable to be modified in accordance with the habits of the creature. They are, therefore, of great zoological value, since the harmony between them and their uses, the naturalist can predict the food and general structure of an animal, from the sight of the teeth alone."

While in a recent dental periodical the learned and distinguished regional anatomist, Dr. Creger of Philadelphia, says: "Dr. Kohler spoke of the teeth as belonging to the maxillary bone. This is a generally accepted term, though they really do not belong to these bones. Teeth are dermoid appendages developed from the mucous membrane of the mouth and are situated in the alveolar process which is attached to the bone. This bony tissue of the alveolar process differs in many ways from the bony tissue of the body. Dr. Hopewell-Smith in his microscopical studies has shown that the bone of the alveolar process is different histologically; in the Haversian system especially. The process is developed with the teeth and is lost with them."

It will be a symbol of wisdom on our part if we refrain from indulging in ridicule, for the ages have oft laughed and ridiculed today, only to admire and revere to-morrow. We are still considerably in the dark concerning the anatomical arrangement of teeth and their philosophy in mastication, but the X-ray will likely solve the problem of tempo-mandibular articulation and when this wonderful process of photography is improved to a point where we get moving X-ray views the solution of many of the complicated queries will be at hand.

(To be continued.)

## OPERATIVE DENTISTRY.

(By R. B. Tuller, D. D. S., Clinical Professor of Operative Dentistry,  
Chicago College of Dental Surgery.)

### CHAPTER XX.

#### GENERALIZATIONS IN FORMING CAVITIES FOR INLAYS.

It must be apparent to anyone concerned in the subject of inlay filling that to be able to take an impression of a cavity or make a matrix for same and to insert the hard and unyielding inlay the orifice must be larger than the interior of the cavity, while the contrary is the principle on which the usual metallic fillings are made.

A metallic filling may be wedged so tightly between parallel walls that it will hold fast; but usually some more or less pronounced undercuts are made to insure retention.

Inlays, however, may be placed in cavities with walls diverging to the extent of being extremely saucer-shaped, and have even been successfully used in (or on, rather) surfaces more nearly approaching a plain. The cement concomitant of an inlay is largely or altogether to be credited with what durability is obtained under such circumstances, and our knowledge of cement science is too meager to go to such extremes when a more particular preparation of a cavity will give an additional hold-fast. In some instances an undercut may be employed on one side of a cavity where the other side is beveled and free enough to withdraw the matrix without danger of distortion.

A straight up and down wall at right angles to the floor of the cavity is to be avoided as much as possible and especially parallel walls. While such walls have the acme of frictional hold, theoretically, it will be shown that diverging walls are better, both for the removal of the matrix and the setting of the finished inlay with closest possible adaptation.

The ideal frictional hold for two hard surfaces is found in the glass stoppered bottle. The neck of the bottle is ground widest at the mouth, and the stopper is ground to the same exact angle to fit it. The hole being round we can twist the stopper in so tightly that no liquid or gases even can pass it—so tightly that it is no easy effort to undo it. Now take such a stopper and cement it in place and after cement is set it never can be released except by absolute destruction of the bottle.

Some early porcelain fillings were put in in this way, but the cavities available were very limited. Round rods of porcelain, tapering slightly, and of several sizes and shades, were then in the market, and the inlay came from the end of the rod. The cavity was made carefully the exact size of a rod selected, by using a bur of the same size. The inlay was then partly cut off the end of the rod, and after it was twisted tightly into the cemented cavity the rod was broken away and the inlay finished down with a stone, and polished with discs, etc.

If the walls of the opening were parallel and the stopper made accordingly it would never fit tightly. Now this same principle goes into the work, in some degree, to fitting of most of our inlays; though in many instances we go to the farthest extreme possible from the tapering opening in a bottle, in fitting both porcelain and gold restorations, even to reversing the order of things, that is, making the inlay hollowed out to fit over a projection on the tooth. Take the ground stopper and try to fit it into a bottle it was not made for and we have a pretty good illustration of some ill-fitting inlays, with the chance that cement would not hold them in very long in place.

Now, it stands to reason that if the walls of a cavity (whether round or not) diverge a little towards the exterior, the finished inlay, stripped of its matrix, will push into the cavity until there is the closest adaptation possible with a film of cement between. While space used to be made to thicken the layer of cement (except at margins) with the idea that it would hold better, it is a well-established principle now that the closer the fit to all walls of the cavity the better and the thinner the layer of cement the better. An exception is made with gold inlays, it being permissible to remove enough of the pulpal surface of inlay to thicken the cement where there is danger of irritating thermal changes caused by metal, a good conductor, being too near the pulp.

Some inlays of gold are made hollow, and in setting said hollow is filled with the cement, which, of course, reduces the conductivity.

Sloping walls, then, are to be preferred to the perpendicular, or we might say are actually necessary to get tight fitting inlays; and while extreme divergence reduces frictional hold, we are frequently called upon to make artificial restoration where we are obliged to depend almost entirely to the hold-fast qualities of the cement. At the same time the inlay operator will be alert to secure any frictional hold

that may be possible, by making steps, pits, corrugations or grooves that do not interfere with the free withdrawal of the matrix.

Another feature of cavity preparation that is essential to correct adaptation of inlays is what is called seating; and that has reference not only to a good, properly made base or foundation where extensive building out is to be done, but to a peculiarity of shaping that will insure the inlay going exactly to place when pressed into the cavity, and not be liable to shift, as might be the case, for instance, on a mere plain or in a smooth saucer-shaped cavity. It will be apparent that in such a cavity there are no guides to carry the inlay exactly to the same spot every time without some special endeavor being made to so shape it that it will so go. Grooves or pits made in the bottom of such a cavity, or somewhere along its seating surface, will not only act as guides to the correct seating, but act also as frictional holds to some extent, as above spoken of.

Round-like or oval-like shapes of inlays are often confusing as to which border is uppermost, and when placed in the cavity with cement hiding the outlines and in a measure dropping into the cavity the mistake, if one has been reversed, is not observed until too late and the inlay possibly broken or chipped by an effort to force it in a way contrary to what was intended. In such cases it is better to form the cavity with some sort of irregularity that is distinctive, and at the same time act as a guide to carry the inlay always to the same place.

The adjoining tooth in many instances is a feature to be dealt with in the forming of some approximal cavities and its presence has to be gotten rid of to the extent of pushing it out of the way by separation. In fact, with all such cavities, the first steps necessary are to secure separation—room to work in. Room also to permit of lifting out the matrix, after it has been fitted, without distorting it, and passing in the finished inlay.

The conservation of good, healthy tooth tissue is at all times a commendable effort when it can be consistently done, but with restorations in aesthetic porcelain more freedom is permissible in cutting away. Extension for prevention may be carried out with a greater feeling that we can restore what has been sacrificed, with something that not only looks like the natural tooth, but that becomes, by the aid of cement incorporated as a part of the tooth, lending strength and support, where a metallic filling held in only by the shape of the cavity weakens instead of strengthens the tooth.

In other words, a porcelain inlay is as near a restoration of the full and complete original natural conditions as can be, while a metallic filling gives no support, but is supported, and by a lame tooth. With a porcelain filling a cavity may be, when necessity requires, excavated nearer to the pulp without special effort to protect the same by intervention of some non-conducting substance, as would be necessary with a highly conducting metallic filling, because porcelain has very near the same conducting power as the natural tooth.

And again, if by chance, or design, infected dentine is left over a pulp rather than expose it, or a bit of decay or affected tissue is left in the interior of the cavity (not about margins) it need not be a matter of so much concern under an inlay as under gold or amalgam. An inlay with its cement lining hermetically seals a cavity so that the fermentation of decay cannot go on, as air and moisture are necessary to fermentation. These are more likely to get under a metallic filling than under an inlay. In fact, they are absolutely excluded from under an inlay. An inlay may be now and then dislodged from faulty adaptation or imperfect cement, but never from being undermined, as metallic fillings so frequently are, by decay.

(To be continued.)





## DENTAL THERAPEUTICS.

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

### CHAPTER XX.

#### Physiology.

A study of the functions of the various organs of the animal body while acting under normal conditions.

#### Pharmacology.

A study of the changes in general which are caused in the living organism by drugs, or chemically active substances, whether these substances are for remedial purposes or not.

#### Pathology.

A study of all causes which produce any deviation from the normal condition, and the changes which are produced in the various organs of the living body by diseased processes or causes.

#### Materia Medica.

A study of the substances used in medicine.

#### Pharmacy.

A study of the methods by which drugs are prepared and combined for administration.

#### Therapeutics (general).

A study of the abnormal or diseased organism under the influence of chemically active substances, the organism being put under the influence of drugs for the purpose of removing the diseased condition and restoring it to a state of health.

#### Therapeutics—

##### Empirical.

Means of experimenting with drugs, ignorant of their physical and chemical constituents; and imperfect understanding of the disease.

##### Rational.

Is where drugs are administered with an understanding of their acting in a given disease.

#### Toxicology.

Study of the normal body rendered abnormal by excessive doses of drug, and the means of removing such effects.

Methods of studying pharmacology and therapeutics.

(a) Mechanically.

Plasters, demulcents, such as cellulose. Ex. Eating grass, etc., causes vomiting and retching.

(b) Physio-chemically.

Osmosis, as the action of NaCl on the amoeba, the action being independent of the life of the cell.

How drugs act on the living body.

(c) Chemically.

The formation of a chemical compound with the living cell or with the living protoplasm. These changes may be visible but are generally indicated by a change in function of the cell.

*General Theory of Protoplasm.*

Liability.

The property of being easily decomposed, as opposite to stability; having a tendency to break down and furnish energy.

Anabolism.

The power of living protoplasm to build itself up, replenishing its store of energy.

Katabolism.

Relagrade changes as manifest in the cell of its breaking down by changes. The process of forming secretion products by living protoplasm.

Irritability.

The property of living protoplasm to be thrown into action by some external stimuli.

Protoplasm reacts to a poison in two ways.

(a) Stimulative.

Increase in liability and irritability—instability.

(b) Depression.

Decrease in liability and irritability—stability.

How does protoplasm react to poison.

1st. Liability and irritability are increased stimulation—or decreased—depressed. Liability and irritability distinguishes living protoplasm from dead albumins. Life or energy depends upon the building up and disintegrating processes of protoplasm. When liability is increased function is increased, energy is given off. Ex. Strychnine on the nerve cells. When liability or irritability is decreased the life functions are diminished. Ex. Morphine on nerve cells.

The increase or decrease in liability and stability when brought

in contact with a drug is due to the formation of a new chemical compound of the drug and the tissue substance. While a drug by forming a chemical compound with the protoplasm of the living cell may increase the cell activity in some organs, in other organs the cell activity may remain unaltered or even decreased.

Ex. Morphine on the brain and on the liver.

Generally these changes are neither macroscopical nor microscopical, but are known only by the change in liability.

Drugs which increase the liability are said to act generally upon the katabolic processes, while drugs which depress act upon the anabolic processes.

Are all the functions of a cell equally affected by a poison?

Probably not, as shown by the reaction of certain parts of a cell to staining re-agents. All the functions of a cell are not necessarily increased or depressed.

Do the cells which react to a poison necessarily contain more of the poison than the cells not acted upon?

The reaction of a cell to poison does not necessarily depend upon the quantity of poison in that cell as compared with other cells. Liver cells contain more morphine when this drug is administered than brain cells, yet the liver cells, so far as we know, are not affected. Yet it is probable that some cells have a greater affinity for certain drugs than others. Ex. Nerve tissue for strychnine.

How do drugs act?

1st. By control.

Mechanical.

Physio-chemical.

Chemical.

Does a drug vary in action with the age of the body acted upon?

Drugs act upon children in accordance with the age of the individual.

What is the relation of chemical composition to pharmaceutical action?

Other things being equal drugs of similar composition have similar actions, the relative power.

Action of drugs.

Locally.

(a) May not be absorbed.

(b) Absorbed, but changed in character during absorption.

(c) May be absorbed too slowly to cause any general action.

#### General.

Action after being absorbed and carried by the blood to the tissue.

#### Remote.

Reflex action.

Ways in which tissue reacts to drugs.

First on isolated cells, using amoeba as an example. Study the effect of a drug on all the functions of the cell, viz., motion, respiration, irritability, lability, etc.

Action of drugs on albumins.

Some drugs render albumins more soluble, while others precipitate them. Alkalies dissolve albumin while tannic acid and the heavy metals precipitate them.

Is the coagulation temperature of albumin influenced by drugs?

Serum albumin coagulates at about 73° C. This point may be changed by drugs.

The amount of drug which actually comes in contact with the tissue depends upon what condition?

- (1) Quantity given.
- (2) Proportion to the body weight.
- (3) Rapidity of absorption.
- (4) Condition of circulation in various parts of the body.
- (5) Rate of absorption by tissue.
- (6) Rapidity of secretion.

What are protoplasmic poisons?

Any substance which in small quantities will destroy the functions of the cell.

What are the actions of drugs upon the blood?

1st. Red blood corpuscles may be changed respecting elasticity.—Racine.

Water may change the form of the cell and salines may cremate them, due to the fluid passing out of the cell.

The cell may be broken up by certain drugs.

The relative proportion of plasma and corpuscles may be increased or decreased. Plasma may be lessened by salines. Drugs may form a compound with the haemoglobin, forming methemoglobin.

The haemoglobin also may be increased or decreased by drugs.

Fe, etc. Boiling decomposes solutions of haemoglobin into haematin and a proteid substance.

Also acids split up haemoglobin into haemalin and proteid.

The coagulability of the blood may be increased or diminished by drugs as by *extract* of *chloride calcium*.

How do drugs act upon the leucocytes?

Motion may be increased or diminished. In time hinder their migration through the walls. The number may be increased by drugs, *nuclein*, while others decrease the number of peptone, albumin or arterial poisons.

How do drugs act on the plasma?

Plasma always alkaline. The  $\text{CO}_2$  may increase its alkalinity, while  $\text{HC}_1$  may decrease the alkalinity. The germicidal power of plasma is increased by nuclein.

Demulcents may act as a protection to mucus epithelium.

Action of drugs on lymph.

Some drugs increase the amount of lymph as by peptones, and albumins increase the amount of lymph thrown off by the vessel cells.

Action of drugs on epithelial tissue.

It may be dissolved as by KOH.

It may be swollen up as in the case of a washerwoman's hands.

The deep layer of the covering may be stimulated as by *arsenic*.

Some drugs, as AG, are deposited in cells.

The upper layers can be coagulated, as by tannic alum, alcohol,  $\text{HGC}_1$ , etc.

Epithelium is acted upon as white corp—movement of may be increased or diminished.

Secretory ipith. are acted upon as other epithelium, except the secretory function may be increased or diminished by drugs.

How do drugs act upon connective tissue, cartilage and bone?

Stimulation of connective tissue causes increased growth. Alcohol. Connective tissue is the only tissue which can be made to increase in growths. Alcohol increases fibrous tissue in the liver and kidneys. Bones and cartilage are increased in density by phosphates. Stimulants may cause an increased growth of bone and cartilage.

Action of drugs on muscle.

- (1) Irritability may be increased or diminished.
- (2) Length of contraction increased or diminished.
- (3) Strength of contraction increased or diminished.
- (4) May be increased in height and length.
- (5) The number of stimuli required to cause may be increased or diminished.

The capacity of muscle to do work can be increased or decreased by drugs, i. e., excitability and elasticity increased.

Sensory nerve end-organs—Stimulation causes feeling of itching, pain, etc.

Paralyzed—Lessened sensation.

Nerve plates not yet shown to be capable of stimulation.

Paralysis of nerve plates is shown by muscle not responding to stimulation of nerve.

Nerve cells may be stimulated in various ways.

If a motor cell is stimulated, then a movement of the muscle to which it is connected follows. If a sensory cell then some sensation varies. Sound as in the head after quinine.

Elasticity may be increased.

Automatic powers may be increased.

Actions of drugs on nerve.

Drugs do not act on the nerve fibers or nerve trunks.

The nerve endings, central and peripheral endings, are acted upon, also any intermediate ganglion cells.

Action of drugs on peripheral endings.

Stimulation of sensory end organs causes sense of touch or prickly feeling. If nerve of sense, seeing, hearing, tasting, etc., some of these functions may be paralyzed.

The termination of motor nerves are paralyzed by *curare*. In the vagus either the central or peripheral termination may be acted upon.

Pepsin and  $\text{HC}_1$  may be added.  $\text{HC}_1$  may be neutralized and peptic powers destroyed. (Alcohol.)

Salivary glands. Secretion may be increased or diminished. Taste organs may be affected by paralysis of nerve end-organs, *cocaine* especially paralyzing the taste of bitter substances. Other drugs take away the sweet taste. Swelling is effected by dryness of the mouth. *Atrophine*.

Action of drugs upon the mouth.

The drugs may coagulate the upper layer of albumin or dissolve the upper layer of epithelium, as by KOH.

Action of drugs on secreting glands—Salivary, Mucus, Lachrymal.

- (1) Increased secretion by stimulating of gland cells.
- (2) By stimulation of gland nerve.
- (3) By increased blood flow.
- (4) Reflex action.

Secretion lessened: (1) Action on cells.

- (2) Action on Protoplasm in general.
- (3) Action on blood flow.

Action of drugs on the stomach.

1st. Secretion of pepsin and  $\text{HC}_1$  increased.

- (a) Stimulation of glandular cells.
- (b) Reflex from mouth.
- (c) Increased circulation.
- (d) By action on vagus.
- (e) Pepsin and  $\text{HC}_1$  may be given as drugs.

2d. Secretion of pepsin and  $\text{HC}_1$  diminished.

- (a) By acids.
- (b) By neutralization of  $\text{HC}_1$ .
- (c) By diminishing peptic powers by *alcohol*.

3d. Movements may be increased.

- (a) By the use of volatile oils.
- (b) Diminished by demulcents.

Vomiting.

Not a simple contraction, but many muscles are called into play.

Vomiting may be induced by drugs irritating the stomach, e. g.,  $\text{NaCl}$ , etc., or by drugs acting on the center. *Apomorphine*.

Vomiting occurs also from reflex causes, as uterine diseases.

Vomiting stopped: (a) If due to irritation of stomach, remove irritant or paralyze sensory nerve end-organs. (b) If due to reflex causes remove cause by drugs or other means, or lessen excitability of center.

Changes undergone by drugs in the stomach.

- (1) Some drugs are neutralized.  $\text{K}_2\text{CO}_3$ .
- (2) Some are rendered less soluble, e. g., albuminates of Fe.
- (3) Some are rendered more soluble, e. g., alkaloids.
- (4)  $\text{Na}_2\text{CO}_3$  changed to  $\text{NaCl}$ , etc.

Double changes as  $\text{Fe}_2\text{O}_3$  to  $\text{FeCl}_3$ , and further change to albuminates.

Some of the tox-albumins are destroyed in the stomach.

Some are thrown up by vomiting.

Some are absorbed.

Some are excreted into stomach.

Action of drugs on the intestines.

Peristalsis may be increased or diminished.

1st. Increased movement.

(a) Stimulation of epithelium.

(b) Action of blood pressure may be increased.

(c) Stimulation of nerve termination (muscarine).

(d) Stimulation of ganglion.

(e) Stimulation of vagus center in M. D.

Action of drugs on bowel.

(1) Breaks up oils, salol, etc.

(2) Absorbs.

(3) Throws out in feces.

(4) Broken up by microbes, e. g., glucosides.

(5) Some drugs excreted.

Movement lessened.

(1) By removing irritant or natural stimulant of intestines epith., as by demulcents, bismuth, etc.

(2) By paralyzing nerve terminations.

(3) By paralyzing muscular tissue, does not occur.

(4) By acting on nerve and nerve terminations. Atrophine, Morphine, etc.

(5) Action on splanchnic centers.

(6) Indirectly affected by bile and by quantities of fluid in intestines, etc.

Secretion of intestine.

Lessened by action on gland. *Atrophine*.

Increased by action on gland. *Physostigmine*.

Asmatic action. *Salts*.

Intestinal digestion.

Intestinal digestion is effected by reaction. best in neutral or alkaline solutions.

Bacteria may be removed by purging or antiseptics.



Pancreas affected by various drugs.

- (a) Directly on epithelium. Physostigmine.
- (b) On terminations of secretory nerves.
- (c) Action on blood vessels. Strychnine contracts the blood vessels by acting on the M. D. Calomel increases the secretion by dilating the vessels.
- (d) Reflexly—Mustard, pepper, etc., when they reach the intestines increase the secretion and solid proportionately.

*Bile Function and Glyconic Function.*

Action of drugs on liver.

Secretion of bile may be increased or lessened by drugs, either acting directly on liver cells or reflexly on stomach and liver.

Some drugs are stored up in the liver as chemical solution—Fe, etc. Slows absorption, as all drugs absorbed from the intestines must pass through the liver if absorbed into blood vessels. Bile may be increased in viscosity. Sugar may be increased. Some drugs cause fatty degeneration—phosphorus.

Influence of liver on drugs.

Drugs absorbed from intestine into blood pass through the portal circulation, thus slowing absorption.

Iron, Mg copper, etc., are stored up in the liver. Also some of the alkaloids are stored up in the liver cells.

Action of drugs on the spleen and lymph glands.

No action definitely known. Several drugs a decided increase of the leucocytes, e. g., nuclein, but how is unknown.

Action of drugs on thyroid secretion.

Obstruction to bile flow increases the thyroid secretion. Toiuylendiamin.

Action of drugs on the kidney.

The splanchnic supplies both vaso-dilator and vaso-constrictors to the kidney.

The run through ganglion cells in renal plexus—Paralyzed by nicotin.

Diuretics: Act either directly on kidney cells or indirectly through blood pressure.

Physiology of kidney.

- (1) Bowman-Heedenham theory.
- (2) Ludwig's theory, that the glomuruli secretes urine which is partly absorbed.

### Questions on kidney.

(1) What are the two theories respecting the manner in which the kidneys act? Bowman-Heidenheim and Ludwigs.

(2) What are diuretics and in what ways may they act?

(3) What other agencies may affect diuresis?

By the tubuli:

1st. Urine increased by direct action on kidney cells. (a) Increase the action of the glomeruli. (b) Decrease the action of the tubuli, e. g., caffeine. (c) Both these agencies.

2d. *Indirect action* through the *circulation*. (a) Increased blood pressure in uria of kidney vessels are not contracted. (b) Rapidity of the circulation is of great importance.

Stimulation of splanchnic along with high blood pressure will not cause diuresis.

High blood pressure caused by increased heart work, or by contraction of vessels other than the kidney vessels will cause diuresis, e. g., cold weather causes diuresis.

(To be continued.)



**PORCELAIN HOODS UPON BROKEN ROOTS.**

By J. M. Thompson, D. D. S.

The use of the screw post in the broken roots and restoring of contour with amalgam for the purpose of forming foundations for gold crowns is not new, but each day brings new ideas and uses for materials now available.

Pointed platinoid screws with the long square shanks are among the many blessings which have been bestowed upon dentistry during recent years. They cut their own way, are very strong, and are furnished in sizes adapted to our needs. Besides the screw post and amalgam, platinum foil used as a matrix gives a finish to this work that can not be obtained otherwise. A recent case in which their usefulness was demonstrated was one in which the tooth in question was all that stood between bridging two small bicuspid to sound teeth or making a plate.

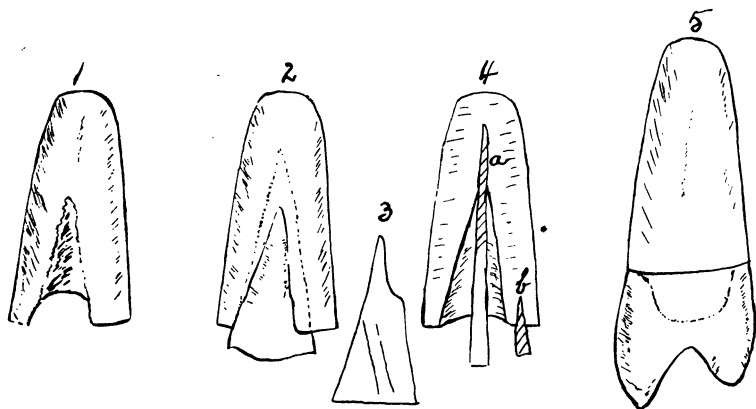
It was an upper left second bicuspid, upon which a Logan crown had been placed and had never been satisfactorily cemented, which was presented for repairs. Upon removing the crown the condition of the root was found to be far from what we might desire. The distal portion was broken away in a manner that involved nearly half of its surface, extending toward the apex nearly as far as the point reached by the post of the Logan. (Fig. 1.) After thoroughly studying the steps necessary, the details herein given were carefully followed out.

In the first place the broken margins of the root were carefully trimmed and made as sound as possible. The pulp canal was enlarged and its measure taken. A piece of inlay platinum was then cut and wrapped around a pointed instrument, forming a long slender cone. This was passed into the canal and gently enlarged, forcing it against the walls of the root, at the same time conforming it to the margins of the broken part and establishing a new wall. (Fig. 2.) Having done this the tube was removed and soldered with pure gold. (Fig. 3.)

In order to obtain greater strength from the cement, Dr. C. H. Land's high fusing media was fused upon the surface of the cone, which was to come in contact with the root. It was then cemented into place and the patient dismissed.

At the next sitting the excess of cement was carefully removed from between the gum and the platinum, leaving a smooth, clean

surface for the tissue to rest upon. A hole was then made in the lingual portion of the root and a small screw placed therein. (Fig. 4, b.) With a spear drill (in a hand instrument) another hole was made passing through the apex of the platinum cone into the solid portion of the root. Into this a medium-sized platinoid post was firmly placed (Fig. 4, a), and the remaining space filled with quick setting amalgam, which was also formed into a cone about the ends of the projecting posts and the patient again dismissed.



At the third sitting this amalgam cone was prepared for the fitting of a porcelain hood. (See dotted line, Fig. 5.) A cap of inlay platinum was carefully fitted and burnished to place, and a bicuspid facing ground to permit of a close adjustment at the gingival portion. The cap and facing were then waxed together and removed. Pliers were used to hold the two together while the wax was removed and a portion of porcelain laid in for the trial baking. This was placed in the furnace and fused and then again tried upon the root. A few little changes were found necessary, such as shortening the facing and shaping it to conform to the general characteristics of the adjoining teeth.

Parentetically, it is right here that individuality and a correct conception of the ideal may be given free rein, as it makes no difference how much the facing is mutilated to secure the desired shape as the glaze is again restored when block body is used. Care must be exercised, however, in grinding too much of the labial surface near the neck, as by so doing the foundation (which is

always of a dark color) is uncovered to an extent that the blending of the two colors is destroyed and a decidedly different effect produced. Having formed the facing properly, the lingual portion of the crown was fully formed and after being carefully fused the platinum was removed and the tooth cemented into position.

This root could have been easily crowned with gold, but the advent of the porcelain hood has removed the necessity of these unsightly displays of yellow metal. The first bicuspid having been lost several years ago, the space had partially closed so by shaping the crown and placing it a little out of the regular position it showed very little room to spare.



# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller.

(No. 16.)

Some folks

Predict an open winter.

I wonder if it is from the number of cheap-skates in evidence.

Cheap-skates are not always in pairs—except possibly when matrimonially tied—but they come in bunches sometimes.

When in pairs they are not always in all respects well mated.

• Even at that it is a wise combination, for it would be a pity to spoil two houses by their living separate.

We all bump against the jolly old impecunious cheap-skate. We don't mind him and his kind so much. They are unmasked. They'd pay if they had it.

But deliver me—and you—from the really well-to-do but CHEAP cheap-skate—the picayunish, parsimonious cheap-skate, man or woman; particularly the latter. If it's a *he* you can use language to him.

I'm talking about the kind that come around looking for bargains in dentistry.

They wear an air of being able, but hanker for the best there is at dental parlor prices.

They are always looking for first-class values in dentistry marked down on account of an overstock.

Their bank account is good, but spending it for dentistry, my! it's like pulling teeth.

When they do come on account of a tooth neglected until the "nerve" has to be doctored, they take time to study up all the parlor "ads" to get posted on "popular prices."

I'd like to doctor the nerve they bring to shop with. I wouldn't use cocaine, either. I don't know why it is, but some people seem to

think that the dentist they have staid away from when the expense would be but small, should carry their misfortunes for them or divide the responsibility of their parsimonious neglect.

Your time, skill and painstaking effort are required to painlessly extirpate a pulp and scientifically treat and fill the roots, and then they sing you a tune that goes like this:

"Why, Doctor, you don't charge for getting a tooth *ready* to fill, do you? I thought \$3.00 for filling would cover all. My! Why, it costs more to take out the 'nerve' and fill the roots than it does to put in the gold. I don't see how that is; you don't put any gold in the roots. Now, see here, Doctor, you don't want to charge us up too much; you remember that not over three years ago I paid you *fifteen dollars* for fixing my teeth. Oh, no, of course it wasn't these same teeth; and, yes, part of it was for the children, but it was all in the family. Fifteen dollars is a *good lot* to pay out just for your teeth. It cost me so much then I did not feel that I could come every six months as you advised. You want to be *reasonable* with *us*, Doctor, for Helen has got to have a tooth fixed pretty soon. It has ached two or three times; and Mildred has complained some, too. My! dentistry costs so much I don't know what we'll do. I sometimes think *I'll* just let *mine* go and have 'em all out and wear plates, and *then* I'll be done paying out—paying out. My!"

This is from real life and that poor family has to get along on an income of ten thousand a year and they can't afford to keep but two servants and a chauffeur.

Inconsistency, thou art a rhinestone—female gender. I can tell you I'd rather see Hulda, the servant, come in any time than the mistress.

When Hulda comes it is: "Doctor, Ai vant vite fillings in das tooth vat looks yust the same like das tooth—you know. Ai don't vant no goldt das looks lack prass. Yas, I know it vill coss more, but I go without shoes, but Ai not can go mithout teeth. Christine, she bin got a goldt toot dere, yust in de middle. Ai call id a prass nail she bin have drive in, and now she don't like id no more. She bin try to pull das nail mith a claws-hammer. She comin' down to you now to get him knock off and put someting vite on. Who put goldt on? Vy, a sheap-skate dentist man on ——— street. She von't go dare no more. She vant good tings, like me. It pay better on das last endt."

Cheap-skate dentist man! That's coming into our camp; but I

guess we can't ignore the indictment altogether. I wish, however, we could turn all our cheap-skate patients over to the cheap-skate dentist man.

The case of the above quoted woman who had to pinch and manoeuver to squeeze through on ten thousand, was a gold filling (put in by the "other feller") that had become loose. After dislodging it, putting it on my bracket and turning my back, it vanished.

When I turned again to my patient I could read her thoughts. They were like this: "You don't get that gold, Mr. Man. Not much. I'll just drop in to the jeweler's when I go home and have that weighed in and get a nice piece of cut glass. You don't rake no gold off your Aunt Sarah!"

You can imagine my disappointment, my confreres, though I made a great effort to conceal it from her.

I had figured, in an entirely casual but confident way, that there was pretty nearly enough *velvet* in that piece of gold for a vest pattern. It was possibly worth 29c full value, or 19c old gold value.

Cheap-skates are honest—sometimes, and sometimes not. We don't have them all in the city, either. The country dentist has his share. Take some of the honest farmers—well, I'll tell you about one not so many miles away from Chicago. He sent his wife into his little town to get a set of *false uppers*. The price was ten dollars, but she cheap-skated it down to eight—on time. Three months later her husband came in and said, "Doc, I haven't got no money, and I don't know when I will have, but I want to pay my debts. I don't want to owe nobody nothin'. But all I've got to pay with is farm produce or stock or some kind. Now, I'll tell ye what I'll do; I've got a nice little heifer calf. She's wo'th fifteen dollars ef she's wo'th a cent. I'll let *you* have that are calf-fer twelve dollars."

"What do I want of a calf?" said Dr. Jones. "What could I do with it?"

"Well," said Farmer Tightwad, "ye can buy her as a good investment and leave her right with me. A year from next spring she'll be wo'th forty dollars. Fine breed. That'll let me pay my debt and yew'll be makin' money."

"What's the matter with your selling her to the butcher, or some-



one, and bringing me the money to pay your bill?" said the doctor. "I'd rather you'd do that."

"No, Doc, I want you to have that heifer. I don't want to see her killed. She's too valuable fer meat. No, you take her and I'm makin' you a low price."

Well, to make a long story shorter, Dr. Jones bought the calf at ten dollars—*ten* because Tightwad was anxious to be out of debt, and insisted, and a receipted bill for eight dollars and a good two dollar bill passed over to the farmer; the calf to be delivered when the doctor was ready. This was not buying a pig in a poke, but a calf, unsight and unseen, poking around somewhere on Tightwad's farm. Three months later a bill came reading like this:

Doc Jones, Dr.,

To Hi Tightwad,

To keep ov caff, 6 munths, \$6.00.

(Back to the time the woman got the teeth.)

Dr. Jones thought it a good time to call for delivery and quit. He, therefore, directed that the calf be delivered to the town butcher, which was not done, however, until the farmer was called on several times. But at length he got another bill with items as follows:

3 more weaks fede.....	\$ .75
Bringin' her in town .....	.75
1 peace rope .....	.22

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\$1.72

Following this, the next day, came a credit slip from the butcher as follows:

Doc Jones, Cr.,

By 1 scrawny bull caf...\$2.98

(And i hadn't order giv that  
much fer the measley thing.)

The doctor never could quite determine how much he made on that "caff" deal; for, when he went to the butcher, that worthy had it hanging on the hooks in four quarters. He bought some cutlets off it which came to 27c. He owed the butcher for previous purchases, and handed over the credit slip and \$1.13 to balance the account.

The doctor says "An honest farmer is the noblest work of God." And the honest farmer said, as he urged his team along the hilly

road, "Doc is a pretty clever feller; though I reckon he hain't never cut no eye teeth yit, if he is in the teeth business. Git epp! Reckon I'll have to have some store teeth myself pretty soon. Git epp! Git epp! That *heifer* calf orter bring 'nough to pay fer two sets purty soon. Git epp! git epp!"

This is the same honest farmer who took an egg to the storekeeper and wanted a darning needle. Then he began to talk about how long he had been trading there; and in his fresh, breezy, robust, straightforward, honest way said, "And, Hicks, I don't never remember your treatin' me to a thing."

"Well," said the storekeeper, "what'll it be? A little good whisky, or a little sherry?"

"Lemme taste the whisky. I don't jest know but what I'd druther have the wine. I'll jest taste and see." said the farmer.

The storekeeper turned his head and remarked "I guess we're going to have a leetle rain 'fore long." At the same time out of the corner of his eye he saw a good heaping drink disappear.

"No," said the farmer, "I guess I don't care much for whisky. The smell on't kind o' sets me agin it. I'll jest go ye on the sherry. Sherry an' aig was allus my best holt."

"Want an egg?" said the storekeeper, and taking up the self-same egg the farmer had brought in he broke it into the glass, and, lo and behold, it had two yolks. The honest farmer filled in the wine and tipped it down his gullet. Then, after smacking his lips with satisfaction, he remarked: "That air aig was double. I reckon I orter have two needles fer that."

"Sure," said the storekeeper, producing another needle.

"By the way," said he "you go right by Silas Brown's, don't you? I've got three or four empty butter jars I'd like to have you leave there if not too much trouble."

"I reckon I kin take 'em," said Tightwad, "an' I'll take a ten-cent paper of that Old True Blue smokin' terbacker. I guess that'll about even things up, won't it?"

On his way home he soliloquized as follows: "By gum! I reckon he'd a guv me a fifteen cent paper jest as quick. Huh! Well, it's too late now. That's where I wasn't a bit smart. Huh! I'll hev to remember that next time. Git epp! Hiram, yer gittin' a leetle furgitful. Huh! Git epp! Git epp!"

(Toothsome Topics Every Month.)

**RECIPROCITY OF DENTAL LICENSE.****By Emory A. Bryant.**

Editor American Dental Journal:

"The world do move" and strange things happen in the world while it is moving. "Consistency thou art a jewel" but you have no abiding place in the dental profession, or else we cannot believe what our ears hear and what our eyes see. The St. Louis World's Fair, the International Dental Congress and other things too numerous to mention have come and gone their way leaving, some memories it were well to forget and some we never wish to forget. It now comes time to digest what has gone before and judge the results, then wander once more into the future and dream about what it may bring. Just at present I would like to keep you in the "nearby," make a short retrospect into the "past," come back to the "now" and then ask you in the language of the gentleman from North Carolina "Where are we at?"

I am going into history, will relate facts, and mention the names of the heroes and the rest you may guess. It is immaterial what you guess, so long as it is a guess.

For the last twenty years the interchange of dental licenses has been the apparent goal upon which the dental profession as a whole has looked forward to with longing eyes, but alas, for all one can gather from the remnants along the trail after the departure from the City of Conventions of the illustrious bodies that there and then did meet, we are still but looking, and the goal is apparently as far away as ever. The National Association of Dental Examiners in Asheville last year, by its own studied action gave us the first ray of hope in the "Stockton Resolution," laying down the conditions under which we were to have interchange, and thereby pledging itself at least to attempt to carry out the plan. The terms were simple, just to all interests involved, and threw its banner out to the entire profession, with prejudice to none, and honor to all. Twelve months roll around, and before the machinery of interchange could get oiled up and into extensive action, along comes another meeting of this famous body, throws soap on the tracks and the wheels of progress begin to slip, and there she is, practically stationary, although the wheels are turning and the machinery under full headway. The track is clear ahead, but the soap in the shape of an added clause, is holding her as fast and tight as if she were chained to the track. That added clause is a requirement that in order to obtain the endorsement of the boards

of examiners of the state from which one wishes to move one has to be a member of the state society. Statistics shown by Dr. J. N. Crouse and others show that but ten per cent of the dentists of the country belong to their state societies, so here at one fell swoop 90 per cent of the dental profession is barred from the action of the "Stockton Resolution" unless they join their state society and by an organization of less than 50 per cent of the examining boards of the states and territories. It is argued that "any reputable dentist who wishes an interchange can easily join the state society, and then obtain the right of interchange," which is plausible on its face, but is it right to demand that the dog be wagged by the tail? Is it ethical to the profession that further compulsory conditions be laid upon the applicant previous to appearing before the state board to obtain their signatures to the certificate of interchange? Would there be any more certainty that this august body would grant the certificate even after you had joined? Were the conditions of the resolution such as would compel this board to grant the certificate to any member of a state society, that would be a different proposition altogether, and no particular fault could be found outside of the apparent forcing of the applicant into his state society. It must be borne in mind that the boards of examiners are a body of state officers and not of the society, not for special jurisdiction over society members, but of all the professional practitioners. They are not put there for the purpose of forcing the practitioners of dentistry into state dental societies, but to enforce the laws of the state regarding the practice of dentistry. Personally, I would love to see every dentist in the country enrolled in his state society, but that is not the question at issue.

Let us go into the mysteries of the "men behind the guns" in the N. A. D. E. and see if we can what the object is that they are shooting at. I will first quote from a letter to me from Dr. C. C. Chittenden, late president of the National Dental Association and member of the committee on colleges of the N. A. D. E., under date of December 28, 1903. "The reciprocity resolution adopted at Asheville of which you speak was to get an entering wedge to open up the subject for the consideration of the various boards, and can be made in no wise operative except as various state boards agree with one another on the standards of interchange. The standards in different states are very various. In no sense should there be any reciprocity proposed except where the standard requirements are

of the highest. There is a standard set by the National Faculties Association of educational requirements. Among other things a four years' course is required for graduation. The examiners have *set no standard* of their own but have accepted and insist upon the carrying out of the standards that the schools have set up and announced to the public. . . . You may not, perhaps, have discovered it yet, but the chief business at the present time of the examiners of this country, instead of being the introduction of reciprocity, is the insistence that dental colleges shall honestly carry out their pledges to the public. . . . As I said before, the placing of the word 'reciprocity' on any statute book at this time would, in my judgment, be unwise and injurious to the interests of the dental profession."

This gentleman graduated when a two years' course was all that was required, though five months was about the limit—1866—and I really cannot comprehend just what is worrying him in this matter of "course," but I will take that up later. Now, let us digest the above letter. "Reciprocity cannot become operative except as the various state boards agree upon a standard." The examiners pass a resolution to grant "reciprocity," but it cannot become operative till "the standards are the highest." The state standards are various, the examiners have no standard, and "their chief duty is to force the dental colleges to keep their standard," and "the colleges have dropped their" (time, not qualification), and "no 'reciprocity' should be put in any statute book." "Good Lord and all the little fishes," will some kind mortal untangle that conglomeration, and then tell us when, Oh when, we will get reciprocity, or anything else for that matter out of this state of affairs? It is too much for my poor brain, and I leave it to those who wish to penetrate the puzzle. I will simply say, that I succeeded in getting *one "reciprocity"* law on the statute book of the District of Columbia, and also that it is working even with the "wheels greased." One mortal man succeeded in getting into the District before the St. Louis meeting got the wheels blocked. I shall look on with considerable interest to see how the next one comes in.

From Dr. J. G. Reid of Chicago I received the following: "It seems to me from a conservative standpoint that conditions are not so grave as to warrant any hasty action in the establishment of 'reciprocity' clauses on our statute books. I am one among many who feel a deep interest on the question involved; but at the same time I am not fully prepared to recommend instantaneous and

radical measures until we become more acquainted by an interchange of thoughts and ideas on the subject. The resolution presented and acted upon at the meeting of the National Association of Dental Examiners held at Asheville to my mind is but a 'starter' in the endeavor to find a plan to meet some of the conditions that are now patent."

This letter was written January 11, 1904.

Now, I will ask you to go back with me to the address of Dr. H. J. Burkhart, the then president of the National Dental Association, Proceedings of 1899, page 74, in which he says in part, as follow: "The states under the police powers granted by the Federal Constitution have the right to control their own affairs in framing laws to protect the health of the people. While it may not be possible to secure the same high standard in every state at once, it is a fact that there are at present three states which do have interchange of licenses, and who stand ready to endorse licenses from any other state adopting their standard. . . . I approach the subject of exacting a higher preliminary standard for matriculation with some hesitation, well knowing the difference of opinion which exists on this question. . . . It is well known that the educational machinery of the several states is not the same, and that it would be impossible to at once exact the standard in force in this state (New York) in every other; but with steady, persistent effort on the part of educational authorities other sections of the country will soon see the wisdom of an advance along this line. Weak colleges should be consolidated, and every facility offered to increase the efficiency of the schools. . . . Each national body should attend strictly to its own affairs, and endeavor by an interchange of ideas to finally and harmoniously reach the desired goal. With the elimination of petty jealousies and the *desire for personal power and gain* all discordant elements can be removed. Bogus reformers, cranks, and mercenary individuals should be sent to the rear and strenuous efforts made to find a common ground for all divergent elements to stand upon, and this can be accomplished by a spirit of conciliation, which should always be observed in considering questions which effect interests of such a vital nature. No one man can claim title to all the honesty and intelligence or consider himself the absolute dictator of matters pertaining to the welfare of the whole profession. *Too close connection with college or examining board work and the seclusion of an editorial sanctum are liable to warp the opinions of many well-meaning men; and while their*

views should receive careful attention, it must not be forgotten that the *large army of lay members of the profession is entitled to consideration*, and that no question is rightly settled which does not *deal fairly with all interests.*"

That was the idea expressed by Dr. Burkhart five short years ago, and to my mind the expressions are too valuable and pertinent at this time to be allowed to sleep in the dusty files laid away on the shelf, thus I resurrect them for the light they may give in the present day. In referring to that portion regarding the interchange of licenses, we see the attempt was made on the basis of "high standards" five years ago, and those who are familiar with that trial remember that the three states got into a row about their own standards, and could not agree among themselves. Since then two or three more have tried the same line, with practically the same result, and if those who believe in this "high standard" and imagine they are *the* "high standard" that all have got to bow down to, cannot agree even in three states as to which is *the* one "high standard" how in the name of common sense do they expect to bring some fifty states and territories into harmonious action? Now to cap the climax, the boards of examiners have gone into a fight with the faculties association, not only upon the "standard," but upon the time required to teach this "standard," and it is now a case of "stand pat" and the courts to settle the question, or somebody has got "to eat crow." I have a very good-sized idea that the "eating of the crow" will not be done by the faculties association when the time comes to do the eating. I predicted that the faculties association would not carry the four years' course for two years if they adopted it; again I predicted that "reciprocity" of license would not be aided by the examining boards or the N. A. D. E. I now predict that the National Association of Dental Examiners will not be able to enforce their "edict" requiring the dental colleges to accept a four-year course beginning with 1906-7. So much for that, now to "reciprocity."

What has the "standards" of future education got to do with those of the profession who have been in practice for five years, so far as it pertains to elevating or degrading their personal efficiency, or fitting them for interchange of license? Why should the 30,000 dentists in practice to-day wait for these "reformers" to force the country to come to some agreement as to standards, which standards they themselves have no idea of, or what it shall be, and if they have, they are not able to agree upon themselves? Are those

in practice to be chained down to their individual states to live and die regardless of consequences, while these parties try their hands at domineering over each other and all creation?

How many of my professional brothers to-day would dare give up their practice and a living in their own state and venture out to face the boards of examiners of another state, no matter what detrimental conditions he must confront by remaining home, if he continues to see in the dental journals a continuous string like the following (Extract from Dental Summary, November, 1904, page 923): "Small Per Cent Passed.—At a recent examination by the West Virginia State Board of Dental Examiners, out of forty-one candidates, only four passed."

The president of this board is a graduate and has been in practice since 1889 in a town of 14,000 inhabitants. Another member has been on the board several years, once president, and he commenced practice in 1855, and in his present town of 13,000 since 1859, and is not a graduate. Another graduated at the Columbian University some five or six years ago, practices in a town of 2,000. Another announces himself as the recipient of a gold medal for cohesive gold filling, and a graduate of the University of Maryland, a school which has taught next to nothing but "soft gold" since it broke loose from the Baltimore College in a family jar some thirty years ago, more or less. The other one from Sisterville, population 3,000, and he wandered from his college door in 1892.

That must be a God-forsaken crowd that came up for examination or God has forsaken the men the crowd run against.

But, then, this is but a "drop in the bucket." Why, my friend Chittenden, of Wisconsin, was so carried away with the idea that the "high standard" millennium had arrived that he rushed into the state legislature and lobbied through a bill last winter in part as follows: "The State Board of Dental Examiners may, in its discretion, except as otherwise provided in this section, license without examination, only a regular graduate of a duly incorporated, and in the judgment of said board, reputable dental college, in which the applicant shall have pursued *four full courses of lectures of at least seven months each*, and which requires for admission thereto a preliminary education equivalent to that required for entrance to the junior class of an accredited high school graduate from such college who having attended the last full course in the college issuing the diploma, shall have received his dental education, prior to said last course, in a dental college having an equal standard as to



courses of study and preliminary requirements. Any regular graduate of a duly incorporated and, in the judgment of the board, reputable dental college, and any person who shall have been regularly engaged in the reputable practice of dentistry consecutively for four years immediately preceding his application for examination, or any person who has served as an apprentice to a dentist engaged in the reputable practice of dentistry, for a period of five years, who may desire a license to practice dentistry in this state, *may* appear before the State Board of Dental Examiners at a regular meeting and be examined in reference to his knowledge and skill in dental surgery. If such examination shall prove satisfactory to said board, the board shall issue to such person a license to practice dentistry in this state. . . . Said board shall, however, license *without examination*, any regular graduate of a regularly incorporated, and in the judgment of the board, reputable dental college of this state, who shall be at the time of the passage of this act, a regularly matriculated student, in regular and constant attendance upon the classes of such college, and who shall continue such attendance taking the full prescribed course until his graduation."

In addition to the above, the dentist has to pay one dollar a year and register every year.

It is no wonder my friend Chittenden is worried over this "four-year course," for he is "between the devil and the deep blue sea." He has either got to force the colleges to come up to his law or bar out all graduates from colleges outside his state till they have "been in practice for four years," or else go to the legislature and say: "Gentlemen, I have made an ass of myself, or you, or both, so please repeal the blunder." The only fault we can find in this logical ending, is that the whole dental profession has to bear the shame of such proceeding. If this law is a specimen of what these "high standard" advocates are preparing for us, I can only say, "God help the dental profession." Likewise, I wish to call the profession's notice to the fact "that God helps those who help themselves." "A wink to the wise is sufficient."

I respectfully call the attention of my friend Dr. Kirk to the "discretionary" powers of *this* board, the careful "nursing" of the students of the Wisconsin dental schools, and I ask him to candidly state to the dental world through his journal *what he thinks of it*, and if *this* agrees with *his ideas* of "dental legislation"?

Respectfully submitted, EMORY A. BRYANT.

# ABSTRACTS AND SELECTIONS

## THE CHEMISTRY OF PULP DECOMPOSITION, WITH A RATIONAL TREATMENT FOR THIS CONDITION AND ITS SEQUELAE.

By J. P. Buckley, Ph. G., D. D. S., Chicago, U. S. A.

(Abstract of paper read before the Fourth International Dental Congress, at St. Louis, 1904.)

By way of introduction the author maintains that the application of drugs for the correction of putrescent conditions can never be placed on a rational basis, until we more fully comprehend the chemical reactions and thus obtain a definite notion of the end-products produced by decomposition on pulp tissue. In his study of the substances found in animal tissue he erects two classes based on the presence or absence of nitrogen. He then at considerable length describes the nitrogenous and the non-nitrogenous substances. He continues as follows:

**FERMENTATION AND PUTREFACTION**—Before doing so, however, it may be well that we have a clear understanding of what is meant by the terms fermentation and putrefaction. These terms are applied to peculiar kinds of decomposition by which the molecules of certain organic substances are broken up into simpler compounds. The difference between the terms is that fermentation is applied to the decomposition of those substances which belong to the group of carbo-hydrates, while putrefaction is applied to the decomposition of those substances which properly belong to the proteid group, and are classified as nitrogenous substances.

**PULP DECOMPOSITION.**—The decomposition of the pulp tissue is essentially an analytical process, which takes place gradually.

Through the agency of micro-organisms these complex bodies are broken up into simpler and well known compounds. That is to say, the micro-organisms first act upon these complex and unstable substances, splitting them up into less complex compounds, which, however, are capable of further analysis, and the process goes on, conditions being favorable, until the decomposition is complete.

The desire to acquaint myself with the nature of the reactions taking place in this process has led me to do much investigating along this line during the last few years; and I state here, without any hesitancy, that the chemical reactions taking place in the pulp chamber and root canals of teeth containing pulps undergoing the process of decomposition, cannot be duplicated in test-tubes in the laboratory. This study and thought, however, has caused me to come to the following conclusions, which I believe will agree with the clinical experience of every careful observer.

I believe that the initial process in the decomposition of the pulp tissue is one of *fermentation*, which is brought about by the action of micro-organisms upon the carbo-hydrate constituents, producing among other compounds such acids as carbonic,  $\text{H}_2\text{CO}_3$  ( $\text{H}_2\text{O} + \text{CO}_2$ ), and acetic,  $\text{HC}_2\text{H}_3\text{O}_2$ , depending largely upon the micro-organisms present in the tissue. This creates an acid medium which favors the action of those micro-organisms, here ever present, having the power to decompose the complex proteid molecule in such a medium, and the process of putrefaction is thereby inaugurated. Among the first products produced are hydrogen sulphide,  $\text{H}_2\text{S}$ ; putrescin,  $\text{C}_4\text{H}_{12}\text{N}_2$ , and two isomeric substances, cadaverin and neuridin,  $\text{C}_5\text{H}_{14}\text{N}_2$ . As the process goes on, these latter substances are gradually broken up, and ammonia,  $\text{NH}_3$ , or derivatives of ammonia, are evolved.

I have been led to believe, also, that the fatty constituents remain practically unchanged in the entire fermentative and putrefactive processes and that they exist in the putrescent mass of a pulp chamber and the root canals. The bacteria may split up neutral fats into glycerine and fatty acids; but other than this, no change seems to occur. Every chemist is familiar with the fact that carbohydrates are unstable compounds; that they readily undergo the process of fermentation, and that neither an acid nor an alkaline medium is essential for the action of the exciting agent, whether it be a ferment or a micro-organism. It is also well known that proteid substances are easily putrified by micro-organisms in the presence

of the *proper temperature, moisture and an acid medium*, all of which are present in a pulp chamber after the process of fermentation has begun. That fats are emulsified or saponified by alkalis, or ferments in an alkaline medium, is also a well established fact. Such a medium, I believe, in the pulp chamber of a tooth never exists from the time the fermentative process begins until the putrefactive process is complete.

**THE END-PRODUCTS.**—It is well to remember, then, that early in the process of pulp decomposition the carbohydrate and proteid or albuminous constituents are decomposed, and that the chief final products are water, carbon dioxide, ammonia, acetic acid, and a semi-putrid substance which, for reasons mentioned, I believe is largely composed of fats, depending upon the extent to which the process of decomposition has progressed. It should be remembered, too, that simultaneously with the breaking up of the pulp tissue the dentinal fibrillae are also decomposed, and that the dentinal tubuli, as well as the pulp chamber and root canals, are filled with the end-products of the decomposition, together with little globules of fat or fatty acids.

Having stated what seem to me to be the chief final products of pulp decomposition, and, therefore, the compounds with which we have to contend in the treatment of these cases, I beg permission to direct your attention to this phase of the subject.

**COAGULATING AND NON-COAGULATING AGENTS.**—Those of you who have read the literature of our profession for the past ten or fifteen years know that the opinions of many investigators in regard to the penetrating or non-penetrating power of coagulating agents in a putrescent root canal are many and varied. The reason for this variance of opinion I have never been able to understand. Many of the leading men of our profession have objected to the use of coagulants in the treatment of putrescent pulps and abscesses without a fistulous opening, for the reason that such agents will, in their opinion, coagulate the albumin present and thereby prevent their penetrating the contents and that the coagulum is also liable to close the small root canals. On the other hand, there are many who advocate that albumin, though present, does not prevent the penetration of coagulating agents, and that such take place throughout the pulp chamber and root canals, as well as the dentinal tubuli. Both sides attempt to sustain their theory by many laboratory experiments. Those who object to coagulants in the treatment of

these cases illustrate the coagulating action of such agents upon the albumin of a fresh egg. The conditions here are not at all similar. Should an egg which has undergone the process of decomposition be substituted for a fresh egg, it will be noticed that no coagulum is formed; for the simple reason that the proteid constituents (coagulable material) have lost their identity by chemical decomposition, and new compounds, with entirely different properties, have been formed. This explains, too, how the advocates of the penetrating power of these agents have seemingly succeeded in sustaining their theory. It has been shown that coagulating agents, in contact with egg albumin in sealed capillary tubes, penetrate the entire mass; and that the action of these agents is self-limiting only up to the quantities used. By sealing these agents in extracted teeth, with the cementum removed, and embedded in plaster, it has been shown, also, that they penetrate the entire tubular structure. These experiments prove conclusively that coagulants will penetrate the putrescent mass of a root canal, but do not prove, to my mind, that albumin as such is here present. I am not anxious to antagonize either side in this controversy, but it is a subject, as I have previously mentioned, in which every practicing dentist must be interested, and yet one which seems never to have been successfully settled. It seems to me, therefore, that we should not be over anxious to criticise each other's views, but each should study the chemistry of pulp decomposition, and thereby acquire a knowledge of the chemical facts relating thereto. It is by this method only that this subject can be scientifically mastered.

**A RATIONAL TREATMENT.**—In selecting drugs, then, to be used in the rational treatment of these conditions, I shall eliminate the question of coagulation and select agents with reference only to their ability to unite chemically with the end-products, resulting from pulp decomposition. In this connection we should remember that the putrescent condition has been brought about through the agency of micro-organisms by a gradual analytical process; that many of these germs are pathogenic in character, and that among the first products of importance are hydrogen sulphide, putrescin, cadaverin and neuridin. The last-named compound, being non-infectious, is of little importance, other than to know that it is a nitrogenous substance from which ammonia is evolved by further putrefaction. Still, according to Vaughan and Novy, while pure neuridin is non-poisonous, it possesses a toxic action as long as it is contaminated

with other poisonous products of putrefaction. This holds true for all non-poisonous bases. Hydrogen sulphide is important because it is an *acid gas* with a disagreeable odor, having local irritant properties; and also because of the part it plays in the discoloration of the tooth structure. However, I must say here, while I realize that hydrogen sulphide is an active chemical agent, that, in my opinion, it has been greatly overestimated in the role it assumes in the discoloration of teeth from the decomposition of the pulp tissue. Putrescin and cadaverin are perhaps the most important compounds, insofar as the correction of the putrescent condition is concerned, known to be formed in the splitting up of the proteid molecule. Like neuridin, they are basic nitrogenous compounds, capable of undergoing further putrefaction, evolving ammonia; but, unlike this compound, while they were at first regarded as physiologically inactive, both these bases have been proven, by Scheurlen, Grawitz and others, to be capable of producing inflammation and necrosis.

Among the gases produced, then, in pulp decomposition are carbon dioxide, ammonia and hydrogen sulphide. As these gases are evolved in those cases where there is no free exit from the pulp chamber, through a cavity, pressure is produced and in many instances they escape through the apices of the roots, carrying the poisonous ptomaines into the surrounding tissue; inflammation is thereby produced, and an alveolar abscess established.

In those cases where we open into the pulp chamber and find a pulp undergoing the process of decomposition, and when the ptomaines and end-products have not been forced through into the apical tissue, our treatment should be to at once *hermetically* seal into the pulp chamber an agent which is volatile and thereby penetrating, and which, as it comes in contact with the end-products, will unite chemically, converting them into odorless and non-infectious compounds. Such an agent we have in *formaldehyde*, a gas,  $\text{CH}_2\text{O}$ , which occurs in commerce at a 40 per cent aqueous solution known as *formalin*.

It has long since been known that ammonia is one of the chief end-products in the splitting up of the proteid molecule. It is also known that formaldehyde unites with ammonia to form a solid compound, which is odorless, colorless and has a sweetish taste, known commercially as urotropin, chemically as hexamethylene-tetramin, with a chemical formula  $(\text{CH}_2)_6\text{N}_4$ . It is stated also on good authority that formaldehyde unites chemically with hydrogen

sulphide, and basic ptomaines, forming inodorous compounds. Formalin, however, is too strong a solution for our general use; therefore, believing that the fats remain practically unchanged in the process of decomposition, I have been using cresols, in combination with formalin, which act chemically upon the fatty constituents. Cresols are homologous of carolic acid. There are three—meta-cresol, ortho-cresol, and para-cresol. The product best suited for our use is *tri-cresol*, a refined mixture of the three. It is a nearly colorless liquid, of a creosote-like odor, and is soluble in water to the extent of a 5 per cent solution. Tri-cresol has been selected as the vehicle with which to dilute formalin for three reasons:

1. It is miscible with formalin in all proportions, thus making a good pharmcal product.

2. **IT IS A GOOD GERMICIDE**—nearly three times as powerful as carbolic acid.

3. It acts chemically upon the fatty constituents, thereby properly disposing of these substances.

The formula which I have been using with gratifying results in the treatment of putrescent pulps is:

R

Tri-cresol,

Formalini,

aa fl. dr. j (4.0 cc.)

M. Sig. On a small pledget of cotton, hermetically seal in the pulp chamber from twenty-four to forty-eight hours. One treatment is generally sufficient.

**TREATMENT OF ABSCESS WITHOUT FISTULES.**—In the treatment of abscesses without a fistulous opening, it is well to modify this formula. In these cases the decomposition of the pulp tissue is complete. The intermediate products (ptomaines) have largely been broken up, pus has been formed from the tissue surrounding the end of the roots, and the first step in treating such an abscess is to mechanically evacuate the pus. We have no necessity for using formaldehyde, then, in the same strength solution as in those cases where the pulp chamber, root canals and tubuli are filled with the putrescent material. The point I desire to impress is that formaldehyde in this strength solution *must* be confined to the tooth structure, for it is one of the most irritating agents known to the therapist. A safe formula for abscesses without a fistula is:

R

Tri-cresol,

Formalini

fl. dr. j (4.0 cc.).

fl. dr. ss (2.0 cc.),

M. Sig. Mechanically evacuate the pus and, on cotton, hermetically seal in the canals from twenty-four to forty-eight hours. Two or three, oftentimes one treatment is sufficient.

**EXPERIMENT 1.**—Add to 5 cc. of strong ammonia water 3 cc. of formalin. A violent reaction takes place, forming urotropin  $(\text{CH}_2)_6\text{N}_4$ , which dissolves in the water  $4 \text{ NH}_4\text{OH} + 6 \text{ CH}_2\text{O} = (\text{CH}_2)_6\text{N}_4 + 10 \text{ H}_2\text{O}$ . The clear solution is evaporated, using moderate heat during the last stages of the process, when the urotropin is obtained as a white, crystalline solid.

**EXPERIMENT 2.**—Pass a stream of hydrogen sulphide into 5 cc. of formalin for a few seconds. The odor is at once destroyed. This proves that a reaction takes place. I hold that methyl alcohol,  $\text{CH}_3\text{OH}$ , is formed, and sulphur is liberated,  $2 \text{ CH}_2\text{O} + 2 \text{ H}_2\text{S} = 2 \text{ CH}_3\text{OH} + \text{S}_2$ .

On evaporating the solution to dryness, the methyl alcohol burns, leaving the sulphur, S, as a residue.

Tri-cresol, besides its germicidal power, dissolves the fatty globules, which if treated with alcohol (as is usually done in drying the canal) produces *lysol*, a good antiseptic. It is plain to be seen, then, that the *poisonous gases* and *liquids* resulting from pulp decomposition are converted by the proper use of formaldehyde and tri-cresol into *non-poisonous liquids* and *solids*, which are themselves antiseptic and germicidal in character. How can we imagine a more thorough sterilization of the dentine than to chemically produce within this tubular structure substances which possess these properties?

Thus I feel justified in speaking of the use of this remedy as a *rational treatment* for the conditions under consideration. Marvelous results are obtained, and at the same time we know why.

It should be remembered that the formulas given are for general use. The practical dentist will soon find that it may be best to vary the proportion of the ingredients of the mixture according to the case at hand. One great advantage in using remedies containing formaldehyde is that the medicament *must be hermetically sealed* in the tooth in order to obtain the best results. This prevents the saliva from contaminating the medicine within the tooth, and the medicine from contaminating the saliva in the patient's mouth.

The use of neither formaldehyde nor tri-cresol alone is original with the writer. I have studied the action of drugs, trying to place the treatment of these conditions upon a rational basis, and am grat-



ified to know that such has been accomplished by the combination of formalin and tri-cresol in the manner which I have suggested.

In conclusion, I desire to say that many of the statements made in this paper are based upon well established chemical facts. Therefore, I cannot lay much claim to originality. However, I have endeavored to make a correct application of the chemical principles involved. The theory in regard to the decomposition of the pulp tissue may seem, perhaps, not to have been scientifically demonstrated; but it is the result of my laboratory investigation, and also is in harmony with my close clinical observation. As such, I present it to you for your consideration.—*Items.*

### ON THE PHYSIOLOGICAL ACTION OF SOMNOFORME.

By Dr. Florestan Aguilar, Madrid, Spain.

(Abstract of paper read at Fourth International Dental Congress, St. Louis, 1904.)

The discovery of Dr. Rolland, Director of the Dental School of Bordeaux, of the mixture which he has named "somnoforme," and which consists of ethyl chloride 60 per cent, methyl chloride 35 per cent and ethyl bromide 5 per cent, is, I consider, one of the most important clinical discoveries of modern times.

In order that an anaesthetic should enter the respiratory tract and act on the nervous centers, it must be in the gaseous form and the rapidity of its absorption is in direct ratio to its degree of diffusibility. This is the force which causes the blood corpuscles to become saturated with its narcotic vapors instead of oxygen; and, therefore, the action of the gas on the nervous system will be rapid in proportion to the rapidity of that saturation. Dr. Rolland presents the problem of anaesthesia in the following propositions:

First, to produce anaesthesia it is necessary that the tension of the anaesthetic gas be superior to that of oxygen, so that it may in a certain proportion take the place of the latter in the pulmonary alveoli.

Second, the tension of a gas being proportionate to its volatility, the more volatile the gas is, the easier can it be made to take the place of oxygen.

Third, the ideal anaesthetic, if such a thing would be possible,

would be the one behaving in its conditions of entry, sojourn, and of exit from the body in the same conditions as does oxygen.

If we follow the course of oxygen in the body we see that the red blood corpuscles become charged with oxygen in the lungs during inhalation and distribute it to the tissues throughout the body. The blood corpuscles have their period of activity during the course through the arterial system. When the oxygen has been given up, the corpuscles return by the venous system inert and dormant back to the lungs, where by contact with oxygen they resume again their former lost activity. Now as about 25 or 30 seconds are necessary for a red corpuscle after leaving the heart to return to it, we can say that in this diagrammatic division of the circulation in two parts, one arterial and the other venous, the action of the oxygen would last from 12 to 15 seconds; therefore, an anaesthetic capable of being absorbed practically in the same manner as oxygen should produce its effect in about 15 seconds, and when the administration be discontinued the anaesthetic should be eliminated in proportion as the corpuscles of the blood come again into contact with the oxygen. This almost precisely is what takes place with somnoforme.

**ACTION OF SOMNOFORME ON CIRCULATION.**—Somnoforme has a powerful action on the great sympathetic nerve, increasing the arterial tension and the frequency of the cardiac contractions. A series of curves of the blood tension taken with the sphygmograph of Marey and the sphygmomanometer of Potain on the radial artery of Dr. Rolland, showed in 20 minutes a variation of from  $13\frac{1}{2}$  of normal blood pressure to  $14\frac{1}{2}$ , 17, 17, 13, 14, 15, 14, 14,  $13\frac{1}{2}$ , during, through, and after anaesthesia. The pulse which formerly was 76 per minute, presented in the same observation a frequency of 76, 84, 76, 68, 68. Respiration, which when normal was 16 per minute, went up to 28, 20, 19, 20, 20, and careful microscopical study of the blood of subjects under "somnoforme" showed that that anaesthesia of from 5 to 15 minutes' duration produced no important modifications in the blood. The urine of the anaesthetized persons also remained normal.

**ACTION ON THE NERVOUS SYSTEM.**—Microscopical studies of the cerebral centers show the modifications produced by somnoforme on the neuron. (The neuron as is well known is the anatomical nerve element or the nerve cell and its branches as discovered and investigated by Ramon y Cajal of Madrid, composed of three parts;

first, a central part which is the real cell with its protoplasma containing elements with and without peculiar affinity for coloring matter and its nucleus; second, a peripheral part made up of protoplasmic branches and the various ramifications (dentrites) with ends which do not anastomose; and third, a more peripheral part formed by the axis cylinders which do anastomose.)

**METHOD OF ADMINISTERING SOMNOFORME.**—Employ always a mask or inhaler in preference to a handkerchief or waterproof cone with which it was originally applied. The inhaler will permit not only the exact measurement of the dose employed, but also the rapid induction of anaesthesia by the total exclusion of air, a factor of great importance. After seating the patient with his head in line with the body, explain to him that he is to make deep inhalations, that the liquid has a slight irritating odor, and that it will produce a quiet and agreeable sleep, if he thinks of something pleasant. The pneumatic pad of the inhaler having been inflated and tried on the patient's face pour the somnoforme from the bottle into the chamber of the inhaler in a dose of 5 cubic centimeters or the contents of a capsule, such as they are sold by the manufacturer, close very rapidly the chamber of the inhaler and instantly apply the face-piece to the patient.

Generally in about 20 seconds the action of the agent will commence and the signs of complete anaesthesia will be seen by the cessation of the ocular movements, drooping of the eyelids, dilating of the pupils, complete relaxation, occasional rigidity of the arms, and loss of corneal reflex. The period of induction is completed in from 30 to 45 seconds and the anaesthesia lasts from 60 to 90 seconds. The pulse slightly increases in frequency and tension and the color of the face remains completely normal without traces of the cyanosis that appears when nitrous oxide is employed. When the patient commences to recover, analgesia persists during some seconds, allowing a little more time to operate with the patient in a semi-conscious state. In 4 or 5 minutes the patients completely recover.

In conclusion, I consider somnoforme the most valuable general anaesthetic in dental practice—by the rapidity of its induction (30 seconds) and the length of its duration (50 seconds), by the possibility of administering it to all patients and without especial preparation, by its pleasant effects and by its safety, demonstrated not only by the investigations on its action on the nervous centers, but also by a clean record of over 300,000 cases.—*Items.*

## ITALIAN WRITERS UPON DENTAL SCIENCE AND THEIR WORKS.

By V. Guerini.

(Abstract of paper read before the International Dental Congress at St. Louis, 1904.)

In Italy, much more than elsewhere, dental art has been, up to a very recent period, unjustly held in low esteem; even in these later days nothing serious has been done in the way of teaching; it is, therefore, not to be wondered at, if in the History of Dentistry, Italian names figure in scarce number as compared with those of French, German, English and American authors. In the course of these pages we shall see that some great Italian dentists have acquired celebrity in foreign lands, for, exactly on account of the low esteem in which the profession was held amongst us, they had abandoned Italy, despairing of ever being able to gain in their own country recognition and worthy appreciation of their talent.

**BRUNO DA LONGOBUCCO.**—The first author worthy of mention is Bruno Da Longobucco, surgeon of the School of Bologna; a treatise, written by him, towards the half of the thirteenth century was highly appreciated at the time of its appearance. The part relating to dental and gingival maladies is very brief. The author appears to us, as a great friend of the actual cautery and advises using it as a cure for dental caries, epulis, fistulae and cancer of the gums. Nothing is said by him of instrumental removal of the teeth; instead he recommends, as a means of making a diseased tooth fall out, a paste of flour and the milky juice of the tithymal to be applied around its root.

**GUGLIELMO DI SALICETO**—Another ancient Italian surgeon, Guglielmo di Saliceto, who was professor at Bologna and at Verona in the second half of the thirteenth century, also says very little with regard to gingival and dental maladies and absolutely nothing referring to surgical intervention.

**LANFRANCHI**—Lanfranchi of Milan, one of the most celebrated surgeons of the thirteenth century, although he mentions the extraction of teeth in a treatise of his on surgery, shows himself but little inclined to the operation and prefers to combat dental pains by using narcotics. The extraction of molars, he considers, an especially dangerous operation,

**THEODORICO BORGOGNONI**—Theodorico Borgognoni (1205-1298), also known under the name of Teodorico of Cervia, is the first author who speaks of salivation consequent on mercurial frictions. What he says about fistulae or of the maxillary region in general, is also worthy of remark. He warns that in every case of the kind it is necessary to pay special attention to the state of the dental roots; when there is exit of pus, the roots are certainly affected, and all the diseased teeth must then be extracted as quickly as possible.

**PIETRO DI ARGELATA**—Pietro di Argelata, or Della Cerlata, professor of surgery at Bologna in the fifteenth century, wrote a treatise on surgery in six books. In this work dental maladies are also taken into serious consideration. He lays great stress upon the importance of cleanliness of the teeth, shows what serious injury is brought about by dental tartar, counsels its removal with scrapers, the file, and dentifrice powders, and even advises the use of aqua fortis for whitening the teeth.

He says nothing about the stopping of decayed teeth; however, he advises cleansing carious cavities with aqua fortis, or else enlarging them in such a manner as to render them less liable to become the receptacle of debris.

Pietro Della Cerlata treated dental fistulae with caustics and with arsenic. In cases of hard epulis of a malignant character, he advised simple palliative treatment; for soft epulis, of a benignant kind, he was averse to excision as likely to give rise to hemorrhage, and preferred instead tying the tumor, or else causticating it with boiling oil or other caustics till it fell off.

**BARTOLOMEO MONTAGUNANA**—Bartolomeo Montagunana, another illustrious surgeon of the fifteenth century, who taught in the University of Padua, recommended a mixture of camphor and opium as an excellent toothache remedy.

**GIOVANNI PLATEARIO**—Giovanni Plateario, professor at Pisa in the second half of the fifteenth century, cauterized decayed teeth with a lighted piece of the wood of the ash-tree, or with the red-hot iron; he held the cauterization to be much more efficacious if, before carrying it out, one filled the carious cavity with theriac.

Before extracting a tooth Plateario, too, as was usual, administered purgatives or bled the patient. He has the credit of having introduced the sitting position for the operations on the teeth, while previous surgeons made the patient lie in a horizontal position or

held his head steady between their knees, as one reads of in Abulcasis and other authors.

**GIOVANNI d'ARCOLI.**—Giovanni d'Arcoli, known also under the Latinized name of Arculanus, was professor at Bologna and at Padua in the fifteenth century; he wrote a medical work of great merit and dedicated several chapters of the same to dental maladies, treating this subject with great thoroughness.

In speaking of the stopping of decayed teeth, Giovanni d'Arcoli says that it must not always be carried out with the same substance, but that in making choice of the material one should have regard to the temperament of the individual and to the condition of the gums, and of the tooth. However, that which is most particularly noteworthy is the fact that Giovanni d'Arcoli counsels filling the teeth, in certain cases, with gold leaf.

The use of gold in dental stoppings, therefore, dates back, at least, to 1450, the period at which Giovanni d'Arcoli's book was written. It is, moreover, to be noted that in naming this mode of stopping, he does not speak of it as an innovation introduced by him; indeed, he merely alludes to it in the briefest possible terms, which greatly contrasts with the ample and particularized manner in which every other subject is treated in the book. From this we may argue that gold stoppings were already in use before the time in which Arculanus wrote, and that he simply mentions a practice of the dentists of the time.

It is also to be noted that in Giovanni d'Arcoli's book we find the first mention of the instrument called *pelican*, which remained in use for so long a time, undergoing a great number of modifications and finally giving origin to the key of Frère Côme, the key of Garangeot and the English key.

Another circumstance, however, renders Giovanni d'Arcoli's book of still greater importance for the history of dentistry. One hundred years after the date at which this author wrote, the German surgeon, Walther Hermann Ryff, published a pamphlet in which was spoken for the first time of dental maladies, their prophylaxis and treatment, independently of general medicine and surgery. Ryff is, therefore, considered as the initiator of dental literature properly so called, and his book, of which the copies now extant are exceedingly rare, has been the object of accurate study, especially on the part of Dr. Geist-Jacobi, who has made known to the dental world the contents of this old pamphlet, bestowing on its

author the highest of praise. By comparing all the passages of Ryff's book made known by Geist-Jacobi with Giovanni d'Arcoli's work, I have been able to establish that it contains absolutely nothing original, for all that is worthy of note in it has been translated *ad litteram* from the work of the above named Italian author, written a hundred years before!

**INGRASSIA.**—Gian Filippo Ingrassia (1510-1580) was, perhaps, the first to make researches into the development of the teeth, and to discover the germs from which they are derived.

Matteo Realdo Colombo.—Matteo Realdo Colombo of Cremona, the successor of Vesalius in the chair of anatomy at Padua, combated the erroneous belief that the teeth form in the alveoli only a short time before their eruption. Having dissected the jaws of a great many foeti, he observed that the teeth existed in them, for which reason he was able to affirm with certainty that the teeth begin to develop during the intrauterine life.

**GABRIEL FALLOPIUS.**—The highly celebrated anatomist, Gabriel Fallopius (1523-1562) of Modena, made accurate and very happy researches about the development of the teeth; he published the results of his studies in a book, *Observationes anatomicae*, published at Venice in the year 1562, the same year in which he died.

By his investigations he demonstrated the fallacy of Vesalius' opinion that the permanent teeth develop from the roots of the deciduous ones. He was also the first to speak in clear terms of the dental follicle.

Fallopius also deserves the credit of having called attention to the analogy existing between the development of the teeth and of the feathers of birds, thus being ahead of Duverney, who demonstrated a century later that the teeth have in their mode of development a great analogy with all epidermic appendages (nails, hair, feathers, horns).

**BARTOLOMEO EUSTACHIO.**—Another celebrated anatomist of the sixteenth century, Bartolomeo Eustachio, made long and most accurate researches on the teeth and on their development, and in 1563, published a work, entitled *Libellus de Dentibus* (Little Book on the Teeth), which is from every point of view a masterpiece and marks a notable progress in the anatomy, the physiology and the embryology of the dental system.

The high value of Eustachio's researches tempted a French surgeon to perpetuate a plagiarism, a fact which, so far I know, has

never been unmasked, but which I myself have had occasion to verify. The name of Urbain Hémard has a certain celebrity in the history of dental art, as being that of the author of the oldest dental monograph published in France. It appeared in 1582, that is, about twenty years after Eustachio's book, and bears the title, "*Recherche de la vrai anathomie des dents, nature et proprieté d'icelles, ou est amplement discoursu de ce qu'elles ont plus que les autres os; avecques les maladies qui leur adviennent et les remedes.*" Now, by comparing Urbain Hémard's book with that of Eustachio, I have acquired undoubted proof that Hémard, instead of carrying out researches of his own on dental anatomy, as he has given to understand, merely translated, and for the most part literally, the most important portions of Eustachio's book.

This fact, which is very similar to the other already related with reference to Giovanni d'Arcoli and the German surgeon, Ryff, demonstrates the great esteem which the Italian authors enjoyed at that time, as well as the great influence they exercised on the early period of the development of dental science.

I will now allude to some Italian dentists who gained high reputation abroad and who wrote remarkable works on dentistry in the language of the countries wherein they had taken up their abode.

Bartolomeo Ruspini.—One of these dentists was Bartolomeo Ruspini, who practiced in London with great success for above thirty years; he was patronized by all the greatest personages of the kingdom, and by the royal family as well, from which he received special marks of distinction. He acquired so conspicuous a position that he was able, with the product of his work, to found an orphanage that was called by his name, being moved to do this by his great love for children, whose dental maladies and disorders had always been, during his lifetime, objects of particular study for him. In 1768 he published a treatise on the teeth, their structure and various diseases. This book was remarkably well received and went through a number of editions, the last in the year 1797. Ruspini did not, in reality, contribute very much to the development of dental science. He is, however, to be specially remembered as the inventor of a very good mouth-mirror, a means of examination which afterwards gradually came into general use.

**RICCI** —Another Italian, Ricci, acquired great celebrity at Paris, where he practiced at the end of the eighteenth and beginning of the nineteenth centuries. He introduced notable improvements into



the manner of inserting pivot teeth, the construction of springs for artificial dentures and into other parts of odontotechny. He was also the author of several works, the most important of which was his "*Principes d'Odontotechnique*" (Principles of Odontotechny), published in the year 1790.

**MAGGIOLO** —The Italian dentist Maggiolo, in collaboration with the French physician Jourdain, published a work of considerable merit at Nancy in 1807, entitled "*Manuel de l'art du Dentiste*" (Manual of the Dentist's Art). This book, written for the most part by Maggiolo, is almost entirely dedicated to dental prosthesis, which subject had never been treated in a detailed manner by anyone before him; Maggiolo's work may, therefore, be considered as the first of its kind. The book was intended to serve as a practical guide to students of dental art, principally in all that relates to prosthesis; and it must without doubt have been of the greatest use, for the clear, precise and complete manner in which dental prosthesis is therein treated. According to Prof. Lemerle, of the dental school of Paris, Maggiolo was the first "prothésiste" of his time, and his book gave a powerful impulse to the progress of dental prosthesis.

**FONZI** —Amongst the Italian dentists, who practiced in other countries, the name that takes first rank in the history of dentistry is that of Fonzi, for he, as is well known, had a most important share in the invention of mineral teeth. This invention is generally attributed to Dubois de Chemant, although some consider him as a plagiarist and declare the chemist, Duchateau, to be the real inventor; finally, others say that both of these were merely precursors of Fonzi, to whom the credit of the invention is practically due. Impartial justice, however, obliges us to say that this important invention is due not to one alone, but to all three of these men. In fact, Duchateau was undoubtedly the first who had the idea of making porcelain dentures; Dubois de Chemant first succeeded in putting the idea into practice, but the prosthetic pieces of his making were in one sole block of porcelain that represented at the same time the teeth and the gums. Fonzi, finally, manufactured mineral teeth properly so called, that is, separate teeth intended to be fixed on to metallic bases. Dubois de Chemant's system of manufacture was as inferior to that of Fonzi as printing with wooden blocks was compared with separate type. While Dubois de Chemant only made dentures for given individuals, Fonzi manufactured as is done

at the present day, assortments of mineral teeth with which dentures could be constructed for any and every one.

These teeth were furnished with small clamps of platina, inserted in the mineral paste before it was baked, by means of which the teeth could be soldered to the metallic base. No one had ever had the idea of manufacturing teeth of this kind before Fonzi; besides this, he found out how to imitate the semi-transparency peculiar to human teeth and to give a great variety of shades to the paste, so as to be able to make the mineral teeth harmonize in color with the natural teeth of the various individuals. In fact, Fonzi introduced enormous improvements into dental prosthesis, as we learn from his own writings, and as was fully recognized by the Académie de Médecine, and by the Athénée des Arts of Paris, which latter body conferred on him a medal and a crown in recognition of his high merits.

I have here essayed to prove, and I hope successfully, that notwithstanding the relative poverty of her dental literature, Italy has largely contributed to the development of dental art and science. Three names alone, of those cited by me, are sufficient to prove this—that of Giovanni d'Arcoli, the first author who speaks of gold fillings; that of Eustachio, whose excellent treatise on the anatomy of the teeth represents a record in the history of dental science, and that of Fonzi, who, as we have just seen, was the first to manufacture mineral teeth to be mounted on metallic bases.—*Items.*

## THE VALUE OF DENTAL LEGISLATION.

By Dr. Anoma, Batavia, Java.

(Abstract of paper read before the Fourth International Dental Congress, St. Louis, 1904.)

The interests of one individual are often opposed to the interests of another. The interests of a number of individuals belonging to the same class can, to some extent, be opposed to the interests of the rest of men. According to the well recognized principle, "The greatest good to the greatest number," the interest of the class must be subordinate to that of the mass, i. e., the general public; yet it has sometimes happened that the power of a class was so well organized that for a long time the interests of the minority predominated those of the majority.

We find this condition where a certain class has been long enough in power to make the laws of the country.

Allow me to ask you the following question: What do you consider the true value of dental legislation and what may the public expect from it?

In the case before us of the public interest vs. dental legislation, allow me to introduce as the principal factor making for ill "professional egotism," a spirit related to self-preservation of the class on one side and professional jealousies on the other. Here I must diverge a moment to make myself better understood.

To my mind there is no more doubt of the existence of professional egotism than there is of a certain kind of patriotism, called "jingoism," that preaches, "My country, right or wrong," or of that egotism which, by instinct and brute force, extinguishes weaker races. Of the latter we have in the history of mankind many instances. Of the former, I hope to give you an instance later on.

All these forms of egotism are brought about by instincts of the individual becoming active in the mass at certain times and intervals of its existence.

**SELF PRESERVATION**—Among the strongest instincts of man is the one of self-preservation. It is a common truth that instincts are hard to deal with, if indeed they can be dealt with at all. They may become concealed to the inexperienced eye, covered by to-day's civilization, which oftentimes is not much more than a social veneer, or by an amiable self-deceit of good-natured and well-to-do people who believe that at least among their classes, instincts, and especially the one of self-preservation, are rudimentary. If, however, those less critical believe that the better classes look out mainly for the interests of others, then to my mind they are mistaken. The lesson given nearly two thousand years ago, "Love thy neighbor as thou lovest thyself," is still generally applicable, which implies its reverse that as a rule man looks out more for his own interests than for the interests of others. I will say, however, that there are no exceptions to this rule, such people as martyrs, where the instinct of self-preservation seems almost lost, but this specimen is very rare. This exception shows up more clearly the rule that says: "The instinct of self-preservation is stronger than the instinct of altruism."

When a man joins a profession he brings his instinct of self-preservation with him. This brings him often in closer contact with

the profession, as he hopes that the profession may at a time be of some use to him.

The following is a direct proof of the existence of such an instinct. In a certain country a society of dentists, forming the editorial staff of a dental journal, desired to change the rules. One of the members proposed the following as the principle on which the new structure should be erected: "The society intends to serve the public by promoting dentistry in the most remote sense of art and science." His obvious reason, as he explained at the time, was to have as the leading motive the "interest of the public." After having been carefully considered, the proposition was rejected almost unanimously. So far as the thoughts of the opposition could be understood, the men who voted against the public interest proposition, feeling themselves representatives of their profession, considered it their duty not to look out, at least, not in the first place, for interests other than those of the body of men represented. The new rules are now based upon a foundation which can easily be laid bare and understood by looking upon the flag and emblem of some of our best dental journals which says, "devoted to the interests of the profession."

As dental journals are leaders and at the same time the voice of the profession, I consider these facts as valuable ones and as a proof that the dental profession needs devotion to its own interests. And as devotion to one (the profession) excludes devotion to another (the public) otherwise it is no devotion—what else can be the cause of the demand of this highest form of affection than the instinctive self-preservation of the class named, professional self-preservation.

In France a body of over two hundred and fifty dentists, the "*Syndicat des Chirugiens-Dentistes de France*," use power to bring before court respectable foreign dentists for using legally acquired but foreign degrees of doctor. As their country does not furnish a dental doctor's degree, the dentists claim that the foreigners gain an undue reputation by the use of that title, thus doing harm to the interests of the local dentists.

That this feeling is more or less common to all lands was illustrated in a conversation bearing on educational matters I lately had with a dental professor in Europe. In replying to a doubt expressed by me as to the advisability of the bachelor's degree and the official medical studies, and the detriment they might work in debarring

many from entering the school and in denying the blessings of dentistry to the masses, he said, jokingly, "Oh, we don't need any more dentists here."

After this I hope to be understood when I repeat professional egotism is an ill-natured feeling related on one side to the self-preservation of the class and on the other to professional jealousy.—*Items.*

#### **TO ADJUST THE PARTS OF A BROKEN VULCANITE DENTURE AND GET A MODEL OF SAME.**

Pass a cake of modeling composition through the flame of a Bunsen burner until one surface is soft, the other surface remaining rigid. Lay the cake on a flat surface soft side up, and press the occlusal surface of the artificial teeth into it, getting the pieces of the denture in approximately their proper relations. Then, using both hands, correctly adjust the several pieces. They will move readily in the soft composition and will stay where placed. Harden with cold water to prevent the accidental moving of the parts.

Now pour plaster into the lower part of a flask and after placing some also on the palatal portion of the denture, place the denture in the flask. When the plaster has hardened remove the modeling composition, remove the pieces of the denture, and proceed as usual.

The cake of modeling composition should not be much larger than the denture, at most not as large as the inside diameter of the flask. In the case of a broken lower it is sometimes advisable to run the cast first, not placing it in the flask until the compound has been removed.

The same compound can of course be reused. Soften it in hot water and roll to the desired thinness on a piece of glass, with a roller such as is used by the amateur photographer for mounting photographs.

Excellent sheets of modeling compound for base plates may be made in this way.—*Noble, Cosmos.*

## **SOCIETY ANNOUNCEMENTS**

### **AND REPORTS OF MEETINGS**

#### **NATIONAL DENTAL ASSOCIATION, SOUTHERN BRANCH.**

The eighth annual meeting of the Southern Branch of the National Dental Association will be held February 21-23, 1905, at Memphis, Tenn.

J. A. GORMAN, Cor. Sec.,  
Asheville, N. C.

#### **INDIANA STATE DENTAL BOARD.**

The Indiana Dental Board will hold its next regular meeting at the county courthouse in Ft. Wayne, Ind., on January 10, 1905. The examinations will begin at 9:30 a. m. on that day. Applications should be filed with the secretary by January 5.

Very truly,

D. L. STINE, Secretary.

#### **DENTAL ASSOCIATION OF SOUTHERN CALIFORNIA.**

The above association met in San Diego, Cal., and the following officers were elected: President, Dr. E. L. Townsend, Los Angeles; first vice-president, Dr. J. W. Neblett, Riverside; second vice-president, Dr. W. C. Smith, Pasadena; treasurer, Dr. W. H. Spinks, Los Angeles; secretary, Dr. Charles M. Benbrook, Los Angeles.

#### **G. V. BLACK CLUB.**

About twenty-five members of the G. V. Black Dental Club, of St. Paul, Minn., held a banquet followed by a discussion at the Merchants' Hotel, October 21. Dr. W. D. James of Tracy read the principal paper on "Prosthesis." Dr. E. R. Wedelsteadt of St. Paul read a report on "Packing Gold." Dr. F. S. James of Winona gave a demonstration of prosthetic work and Dr. A. M. Lewis of Austin of crown and bridge work.

**LAVAL'S DENTAL SCHOOL INAUGURATED.**

The official inauguration of the new school of dental surgery in connection with Laval University, Montreal, October 10, took place in the latter institution.

The president, Dr. E. Dubeau, delivered an interesting and practical address on the evolution of dental art in the world.

The election of officers for the faculty was held, with the following result: Honorary president, Dr. Eudore Dubeau; honorary vice-president, Dr. J. T. Gendreau; president, Armand D. Porcheron; vice-president, Geo. A. Belanger; secretary, Leonidas Boutin; treasurer, Alcide L. LaRose.

**SOUTHWESTERN DENTAL ASSOCIATION.**

The Southwestern Dental Association held its annual meeting at Osceola, Iowa, October 11 and 12. The meeting was successful and interesting.

The association decided to hold the next session at Creston on the second Tuesday of October, 1905, and the following officers were selected for the ensuing year:

President—Dr. F. P. Wells, of Clarinda.

Vice-President—F. M. Kelsey, of Villisca.

Treasurer—George E. King, of Villisca.

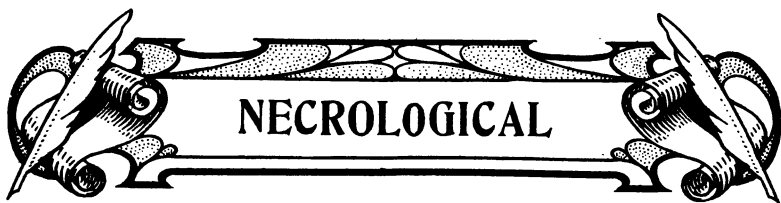
Secretary—George E. Brooks, of Greenfield.

**THE COLORADO STATE DENTAL ASSOCIATION.**

The Colorado State Dental Association held its eighteenth annual convention in Denver, October 12-13. The following officers were elected:

B. A. MacGee, Denver, president; H. L. Morehouse, Colorado Springs, vice-president; H. W. Bates, Denver, treasurer; H. F. Sutherland, Denver, Theodore Ashley, Canon City, F. S. McKay, Colorado Springs, H. F. Hoffman, Denver, and Rea P. McGee, Denver, were elected to be recommended to the governor as members of the state examining board. The governor may appoint all of them or only three.

Colorado Springs was chosen as the place of the next meeting in June, 1905.



### **DR. JOHN T. RICHTER.**

Dr. John T. Richter died at Oshkosh, Wis., October 26, of tuberculosis.

Deceased was 29 years of age the 5th of last September. His former home was at Red Wing, Minn. Having completed his education in the public schools he decided to enter the profession and took a preparatory course in dentistry in the Indianapolis Dental College. In the year 1895 he went to Oshkosh and took the position of assistant in the office of Dr. N. H. Teal, where he remained until 1900. From there he removed to Minneapolis, where he was with Dr. Lennox for about a year. Deciding to complete his education in his chosen profession he entered Northwestern University and graduated from the dental course a year ago last spring. Since graduation he has been with Dr. Templeton on West Twenty-second street, Chicago.

Deceased was a member of Psi Omega fraternity of Northwestern University, and directly after joining the fraternity was elected secretary, serving in that capacity for some time.

### **DR. THOMAS K. BREWSTER.**

Dr. Thomas K. Brewster, a venerable dentist of Oskaloosa, Iowa, died October 23 at his home. The cause of his death was blood poison induced by trimming corns.

Deceased was a resident of Oskaloosa for thirty years and was generally known and respected. He was 76 years of age. Dr. Brewster at one time enjoyed a large practice in his profession of dentistry, but as he advanced in years gave up the more active work although retaining his office and some practice.

Thomas K. Brewster was born in Green County, Ohio, in 1828. He received his education and studied for his profession in Dayton and Cincinnati and engaged in practice in Dayton until coming to Oskaloosa in 1874.



**DR. MATHEW W. SNYDER.**

Mathew W. Snyder, Adrian, Mich., a dentist and a bachelor, 60 years old, was found dead in his office, October 27. He lived at the Gregg Hotel and had been missing since October 24. Cause of death supposed to be due to apoplexy. The doctor's brothers all became dentists, and those who survive are Drs. J. C. of Hillsdale, Mich.; H. C. of Toledo; B. F. of Tecumseh, Mich., and W. A. of Maymaine, Wis.

**DR. WM. C. HEPBURN.**

Dr. William C. Hepburn, 45 years old, a dentist, of New Rochelle, N. Y., died October 20, of valvular heart disease. He was a prominent member of the Presbyterian Church, the New Rochelle Rowing Club and the Royal Arcanum. He leaves a wife and three daughters.

**DR. CARL O. DICK.**

Dr. Carl O. Dick, of Michigan City, Ind., died October 22, of typhoid fever, after an illness of two weeks. Dr. Dick was born in La Porte and was 24 years of age. He was a recent graduate of a Chicago college and had been in practice at Providence, Ind., but a few months.

**DR. J. A. TIGNER.**

Dr. J. A. Tigner died at his home in Rome, Ga., October 26, after a long illness. He was one of the best-known dentists in that state, and had lived there for twenty-six years. He leaves a wife but no children. Dr. Tigner was 76 years of age.

**DR. JOHNSON LOW.**

Dr. Johnson Low died at Shabbona, Ills., Oct. 26th. He was a highly esteemed practitioner of dentistry at Shabbona for many years in large and successful practice. We extend sympathy to the bereaved family.

**DR. F. W. CALL.**

Dr. F. W. Call died of a complication of diseases at Cedar Rapids, Neb., September 27. The doctor was a graduate of the Omaha Dental College and a member of the class of 1901.

**DR. W. M. GRIFFITH.**

Dr. W. M. Griffith, a dentist, died at his home in Atlantic, Iowa, Friday, October 14, from an attack of acute appendicitis, followed by peritonitis. He was ill only a few days.

**DR. J. BRENTON WISE.**

Dr. J. Brenton Wise, a dentist at Chester, S. C., died very suddenly October 11 of apoplexy. He was 37 years old. He leaves a wife and three children.

**DR. E. C. WEEKS.**

E. C. Weeks, a prominent dentist of Nashua, Iowa, is dead.



## MISCELLANEOUS

### **To Facilitate Taking Plaster Impressions for Partial Dentures.**

Use a flat bottom tray and before putting the plaster in place fit in two pieces of metal plate bent to right angles so that the horizontal part lies on the bottom of the tray and the perpendicular part will stand upright and extending mesio-distally. These upright parts will remain in the plaster impression and will serve as line of cleavage in breaking the impression away from the teeth after the tray is removed.—*Dr. E. L. Townsend, Pacific Gazette.*

### **Repairing Chipped Inlays.**

In molars or bicuspid, where a slight line of metal will not be objectionable, a chipped margin is easily repaired, as follows: Cut out the edge with a fine fissure bur; wash with alcohol and dry; place a small quantity of oxyphosphate of zinc in the fissure and squeeze it out with pieces of sponge gold. Let the cement harden, cleanse the margins, condense the sponge gold, and finish in the usual way. Amalgam instead of sponge gold may be used in the same way.—*Dr. Jos. Head, Dental Summary.*

### **The Malapplication of Drugs.**

Among the many bad results of the malapplication of drugs we see necrosis from the injection of powerful escharotics, destruction and sloughing of soft tissues from drugs incompletely sealed, an increased area of infection from the application in closed cavities of effervescing remedies, periosteal inflammation from the use of irritants in root-canals, chronic irritation from the sealing in roots of powerful escharotics, etc.—*A. E. Morey, Dental Review.*

### **An Aid in Removal of Gum.**

In cases of the gum covering a cavity in which there may be possibly an exposed pulp to treat, much pain and annoyance will be saved by first applying trichloracetic acid, which destroys all organic matter but not inorganic. It does not matter if it should touch the

pulp. In a quarter of an hour you will be able to cut away without any pain. It is very useful in case of difficulty erupting third molars; just put a few crystals between the gum and the tooth.—*Cosmos*.

### **Setting the Inlay.**

First: Apply the rubber dam and dry the cavity thoroughly.

Second: Mix cement of proper color to moderately thin consistency and spatulate it thoroughly.

Third: Spread a thin, even layer over all portions of the inlay enclosed in the cavity and carry it to place quickly, using all the force that is permissible to expel any surplus, and force the inlay to proper position before the cement hardens.

A strip of rubber dam may be placed over the inlay and around the tooth and stretched in such manner as to produce pressure upon the filling in the proper direction.

Pressure should be maintained for ten or fifteen minutes, or until the cement has become hard and firm. When thoroughly set the surplus can be trimmed away with sharp knives.

Usually the thin inlay will appear darker when first set on account of the tooth and the cavity walls being abnormally dry. The tooth after a time regains its normal amount of moisture and the inlay should harmonize perfectly in color with the tooth if the various steps have been properly carried out.

The cement also may modify the shade somewhat, but this cannot always be avoided. It is best usually to use a cement lighter rather than darker than the tooth for this reason.

Until a transparent cement is found this uncertainty will always be a source of greater or less annoyance to the porcelain worker, and until a cement is produced which is insoluble in the fluids of the mouth porcelain is likely to prove more or less unsatisfactory as a filling material.—*Dr. J. H. Prothero, Ex. N. Wes. Jour.*

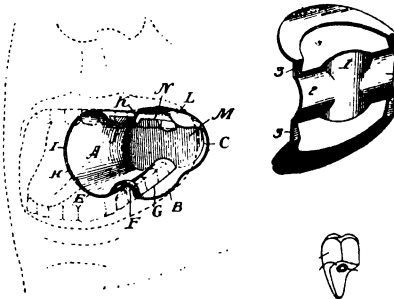
### **Sterilizing Bibulous Paper Wads.**

Wads which are rolled between the fingers will seldom be found to be sterile. I have been in the habit of preparing a large quantity of them, soaking them in a solution of thymol in alcohol, drying them, and keeping them in a jar free from dust. They are then not only aseptic but antiseptic. Dry heat is unsatisfactory.—*Dr. W. D. Miller, Dental Cosmos*.

# DENTAL PATENTS

770,768. Device for securing artificial bicuspid or molars in crown and bridge work. John R. Mitchell, Perth, Canada. Filed July 8, 1903. Serial No. 164,723. (No model.)

Claim.—1. An artificial bicuspid or molar having at its rear a set-off to form a shoulder with a mortise or pin-hole sunk in the face of said shoulder and a metallic lining to said mortise baked into the substance of the tooth, substantially as set forth.



770,853. Combined mouth-prop, tongue-protector, etc., for dental use. William Hare, Danville, Ill. Filed November 7, 1903. Serial No. 180,278. (No model.)

Claim.—An improved article of manufacture, comprising a mouth-prop, wings projecting from the sides thereof, arms and lip-protectors extending from the wings; stamped from a single piece of sheet metal.

770,854. Dental mouth-prop and mirror, cheek-distender, etc. William Hare, Danville, Ill. Filed December 7, 1903. Serial No. 184,243. (No model.)

Claim.—An article of manufacture stamped from a single piece of thin metal, comprising a portion with a smooth reflecting-surface on its inner side; a protector for the tongue, upper and lower retractors with teeth-openings at the inner edges of the upper and lower retractors.

## PERSONAL AND GENERAL

**Dissolved.**—Drs. Willet & Stephens, at Pekin, Ill., have dissolved partnership.

**Robbed.**—The office of Dr. F. P. Smith at Rock Island, Ill., was robbed October 23 of gold to the amount of \$100.

**Stetzer-Finnegan.**—Dr. John Stetzer, a dentist in Philadelphia, was united in marriage in that city October 19 to Miss Blanche Finnegan.

**Women Thieves?**—Dr. J. F. Ryder of Moline, Ill., lost a quantity of gold through thieves recently. Two women are suspected of this and the Smith robbery at Rock Island.

**More Appropriate.**—Biggs—"I wonder why a dentist calls his office a dental parlor?"

Diggs—"I don't know. Drawing-room would be more appropriate."

**Rork—Paulson.**—Dr. Ray Rork, formerly of Franksville, Wis., but now a dentist of Arcadia, was united in marriage Friday, October 7, to Miss L. Marie Paulson at the bride's home at Friendship, Wis.

**Dentists Must Close Office on Sunday**—Dentists at Manchester were notified by the police that hereafter they will not be allowed to keep their offices open or do any work on Sunday save in cases of necessity.

**Married.**—Dr. O. H. Cresser, a graduate of the Omaha Dental College, was married October 26 at Omaha to Miss Pearl Will. After a trip to St. Louis they will be at home to their many friends in North Platte, Nebr.

**Robbed.**—Dr. G. J. Mead, a dentist at Erie, Pa., reported that during the night his office had been entered, and teeth, gold leaf and platinum to the value of \$40 had been stolen. An entrance was effected by prying back the night latch. The police have been unable to locate the offender.

**Holland—Griffin.**—Dr. Thomas J. Holland, a dentist of Manchester, N. H., and Miss Annie Griffin were united in marriage October 25. The couple left on their wedding tour immediately after the ceremony. On their return they will take up their residence in that city.

**Corroborative.**—Dentist (who has pulled the wrong tooth)—"I see how I made the mistake. I counted from the back instead of the front. You don't seem to have cut your wisdom teeth yet, young man."

Groaning Patient—"That's evident from the choice I made of a dentist!"

**Dentist Sues Railroad.**—Dr. J. M. Mason is suing the Macon (Ga.) Railway and Light Company for \$15,000 damages. He claims that he was struck in the back with a brake handle which the motorman released while he was standing on the platform of a car, and the injury has permanently disabled him. Dr. Mason is one of the best known dentists in middle Georgia, and he has a great many friends throughout the South.

**Officers Elected.**—Dr. John N. Sandblom, recently elected president of the Scandinavian-American Dental Society, is a native of Sweden and a graduate of the Northwestern Dental College, in which he also is demonstrator. The society, which was formed a short time ago, will later be affiliated with the Scandinavian Medical Society. The other officers are: Dr. William Kjollerstrom, vice-president, and Dr. Aaron M. Olson, secretary-treasurer.

**New Invention.**—Dr. W. B. Alford of Sumter, S. C., with his brother, has recently invented a combination dental motor and fountain cuspidor. A charter has been granted by the secretary of state to a company for the manufacture of this machine and a plant will be established very soon for the manufacture of this and one or two other inventions that Dr. Alford will soon put on the market. The company has recently protected the machine by patents in all foreign countries.

**Commits Suicide.**—Near Ashboro, N. C., Dr. W. R. Love, a dentist, committed suicide by shooting himself in the head with a double-barrel shotgun.

**Dr. Wilson Now Located in Arizona.**—Dr. H. H. Wilson, for a number of years a well known dentist in Chicago, and active in all progressive work of the profession there, is now located at Phoenix, Ariz., where he was obliged to remove on account of the health of his family. The American wishes him success and long life to himself and those dear to him.

**Fires.**— Dr. B. W. Jones lost office fixtures, etc., to the value of \$1,000 October 24 by fire which destroyed the block in which he was located. Fire destroyed the building in which was located the office of Drs. Pushett and Smith at Geneva, Neb. Dr. R. P. Thomas, a dentist, having offices in San Antonio, Texas, lighted a gasoline burner. The stove began to spout gasoline instead of gas, and in an instant the flames were touching the ceiling. Dr. Thomas attempted to smother the blaze, but was severely scorched about the face and neck. The building was considerably damaged.

**Prettyman-Nugent.**— Dr. Homer L. Prettyman, formerly of Rockford, Ill., but for the past year engaged in dental practice with Dr. J. H. Julian at Kansas City, was married November 9 at New London, Iowa, to Miss Elizabeth Nugent of that city.

Dr. and Mrs. Prettyman will sail from New York December 5 for Sao Paulo, Brazil, where Dr. Prettyman was located for a number of years and where he still retains heavy interests. It is their intention to make their permanent home in Sao Paulo, which is a large and growing city with a considerable English and American population.

**Dentist's Widow a Suicide.**—Mrs. Clara Wilson Reibline, 44 years old, whose husband, Dr. Albert Reibling, a dentist, died in the Fordham Hospital on September 25, from supposed ptomaine poisoning, was found dead from inhaling illuminating gas in Brooklyn. A gas tube running from the open jet was fastened by a string around the back of her head, as she lay on her bed, in such a way that the gas flowed freely into her nostrils. She had been dead several hours and the room was filled with gas when the janitor of the house detected the odor and summoned the police.

**Dr. Thompson Chosen.**—At a meeting of the trustees of Washburn College held at Topeka, Kan., Sept. 13, it was definitely decided to establish the dental school, and Dr. A. H. Thompson was elected dean of the school. The plan is to establish the full four years' course in dentistry next fall, and begin immediately the work of the school by giving the first year's dental work in connection with the work of the Kansas Medical College, the medical department of Washburn. Dr. A. H. Thompson has had wide experience both in practical dental work, in instructing in dental colleges, and in writing for dental publications. No better man for the position of dean could be found in the west than Dr. Thompson.

**Dentist Slain in His Office.**—Dr. L. A. Gebhard, aged 20 years, a dentist, was found murdered in his office at New Ulm, Minn. The crime is a mysterious one, as no motive has been discovered, neither is there any indication as to who the murderer is. His office showed evidences of a life and death struggle. Blood was spattered on the walls and furniture overturned. The young man's face was gashed in many places, and a blood-stained knife and hammer were found near the body.

Dr. Gebhard's office is located over the New Ulm Review printing office, and Asa Brooks, editor of the paper, who was in his office, said he heard faint sounds overhead as if furniture was being shifted about, but did not suppose that a fierce struggle was going on.

The safe in the office was found open, but nothing in it was disturbed.

**Igorrote Longs for Gold Teeth.**—Believing that gold teeth were all that was needed to make him the envied society leader of the Igorrotes, Sudong, one of the ambitious members of the tribe, deliberately smashed two of his front teeth in order to have a pretext for going to the dentist.

Sudong's efforts were in vain, however, for Gov. T. K. Hunt, who is in charge of the Igorrote village, discovered the ruse and refused to allow the Igorrote to have his teeth crowned. Gov. Hunt believes that the cunning Sudong will find some other excuse and that ultimately he will obtain the coveted gold fillings.

To the instinct of imitation, which is strong in semi-civilized people, is to be attributed Sudong's desire for gold-filled teeth. According to the statement of Gov. Hunt, Sudong first got his idea of having his teeth crowned with gold from the many crowns he had seen in the teeth of visitors to the Igorrote village. He believed that Americans filled their teeth with gold as an ornament, and he determined to do likewise.





## **PROSTHETIC DENTISTRY.**

**By B. J. Cigrand, B. S., M. S., D. D. S.**

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University of Illinois.)**

### **CHAPTER XXI.**

Of late there has been a revival of interest in matters pertaining to methods calculated to restore or correct cleft of palate cases. The literature of our profession indicates a deep concern in this direction, though for the most part the papers read before dental gatherings treat the subject from the standpoint of the surgeon. Now it is my purpose to call your attention to the shortcomings of the surgical method—in so far as this method does not comply with the laws and functions of nature. But before directing any attention to the surgical method I am impelled to speak in the highest terms of the successes of Drs. Garretson, Marshall and Brophy, who have in many cases accomplished pronounced triumphs in certain favorable cases. But there are cases which do not yield to the surgeon's knife—there are times when the standing rules of nature rebel against interference, and it becomes necessary to aid, rather than force, nature to take certain grounds. There is not at present a more congenial procedure than the strictly prosthetic, provided that good judgment is used in the character of the appliance.

Surgery has its triumphs in certain cases, but when the oral surgeon advocates these corrections by means of the knife alone, he is allowing enthusiasm to control discretion. Nor should the prosthesis insist that the prosthetic should always be resorted to. In fact a number of cases which I have seen indicate that where the oral surgeon leaves off the prosthesis should begin, because in the greatest number of cases the surgical operation is but a beginning, not the end of the agent of restoration.

In the first instance we must remember the true functions of the

hard palate, the soft palate and the uvula, since disregard of their purposes must naturally lead to failure, but it is most important that we understand the physiological function of the uvula or velum. Careful and scientific students of physiology have told us that the uvula acts as a valve between the oral cavity and the nasal cavity, and that it is not essential as a curtain or vibrator, as has been thought. General surgeons of late not infrequently amputate portions of the uvula, when it is too pendulous and drags on the tongue, making deglutition uncomfortable and speech indistinct. Hence the old idea that the uvula is never over-developed or too long does not prevail among general surgeons. It has been advocated in the past that the uvula is an important element in the production of sound because of its vibratory qualities. Its cardinal virtue lies, however, in its ability to close the faucal opening of the nose. The fact is its function is essentially that of a valve and in proportion as it is a perfect gate between the oral cavity and nasal cavity, it is efficient as an element of articulation. Consequently it is not primal to hang or be as a pendulum of flesh.

It is not the purpose of this paper to discuss the cause of cleft palate other than to say that I prefer to attribute it to three rather than two sources, namely, congenital, accidental and acquired. The simple cases of palate perforation as well as the complex cases of cleft I will demonstrate in the clinic to-morrow and will not take up the time now.

The method of taking an impression is of considerable importance, and this I will also demonstrate. It will afford me great pleasure to show the Case method for taking impressions. Dr. Case of Chicago has given this subject considerable thought and has contributed some very valuable suggestions. His appliances are also a pronounced advance over what the profession has been employing.

The Case method is a most decided step in the right direction; it certainly deserves commendation. The Case obturator has thick, round and heavy edges and is thin in the center, and is really opposite in construction to the Kingsley obturator, which is thicker in the center than at the edge. Dr. Case constructs two cases usually—the first being made of velum rubber, and when the patient becomes accustomed to the appliance he makes a new case of hard and velum rubber, the latter being used in the center as a diaphragm.

The disadvantage of the Kingsley method with its thin velum rubber edges is apparent. The soft rubber readily disintegrates, and, being porous, absorbs moisture and oral fluids, and this makes it uncleanly and in a measure uncongenial to the oval tissues.

The Case method could be improved, as I suggested while discussing this subject before the recent meeting of the Illinois Dental Society—if he would line the obturator with gold—or, better still, make the entire case of cast aluminum. I have had a case and cast an appliance and attached the anchors as I suggest and will exhibit same at clinic. By the method I suggest the case is firmly held in position and the patient need not fear swallowing same, and this assurance is a comfort indeed.

The method I pursue is to swage a thin piece of gold to fit both sides of the cleft, and then take an impression with these in place, then remove and place on the plaster model and solder a thin piece of gold, connecting the two metallic margins. Carefully fit and adjust the metal to the posterior faucal walls and be sure to bend the distal margin so as not to impinge or cut the surrounding muscles. Then solder a wire of clasp metal, from the lateral sides of the obturator and extend them to gold crowns placed on both sides of the upper jaw, and by ratchet principle anchor the simple device into position.

No doubt some of you wish to know how I swage the two lateral pieces of gold so they will accurately hug the free margins of the fissure. This gave me considerable trouble until I by mere chance broke a model, severing it in a line with the fissure or cleft. After breaking the model as described, make a mold in sand of the free border of the cleft and make a die and counter die; then take 22-karat gold of about 30-gauge and swage to perfectly fit the margin of the left half of the model, and then swage a piece of gold in like fashion to cover the margin of the right half. Now place these lateral pieces of gold in their respective models and bring the models together into their original positions, as indicated by the fracture. You now have a piece of gold covering the left side of cleft and a piece of gold covering the right side of the cleft. The next step is to get a pattern in either tea-chest lead or sheet wax and obtain the outlines of the diaphragm or gold connecting the lateral pieces of gold. Cut gold to this pattern and solder it into position, remembering to let the diaphragm extend distally to the faucal walls and instead of cutting the gold off where it impinges, simply bend it

upon itself, and the rounded border will be all the more congenial to the muscular tissues.

Do not have the gold border bent into an abrupt crescent, as this would form a shelf for food to lodge.

If these points are observed you can produce a most simple hygienic and serviceable obturator. I regret that the term obturator does not really express the mechanical appliance used in the restoration of cleft of palate. We use many terms and think they mean what we intend, but when we trace the word to its origin we find we are employing words and expecting them to convey certain ideas, when in truth they do not express the thought intended. This is the case with the word obturator. This word means "to permanently close up, by artificial means, an opening which serves as a canal." Now our appliance is not supposed to close up the opening permanently, since such a device would be an injury rather than a benefit. Our device closes the opening only during deglutition and while certain oral sounds are produced, while during the process of breathing and speaking words of a nasal sound the obturator does not close the opening. We need new terms—words which will express our ideas clearly. When we can dispatch thought and know that its meaning has perfect reception we shall have arrived at a most praiseworthy epoch in the career of our profession. There are but few who fully appreciate the importance of professional terminology.

Let me direct you to have the metal which serves as the diaphragm bent in such a manner that the free margins are in the oral and not in the nasal cavity. If you bend them upward the nasal mucus and fluid substances would lodge and necessitate frequent removal of the case.

In the event of mere perforation of the palate and the opening is not larger than a nickel, excellent results can be gotten by swaging a piece of 22-karat, 24-gauge gold, soldering in the center a thick gold bolt; drill hole in the gold base and attach a gold post on its nasal surface and force a rubber wheel, such as we use in cleaning teeth, through the wound or aperture. The rubber will distend and hold the gold base in position.

There are numerous other methods, but many of them are not practical or hygienic.

The methods which require a spring have the disadvantage of harboring foods and should not be employed.

Some time since an Eastern dentist advocated that the obturator be made of metal and that a metallic vula be made and attached to the base by means of a hinge, but even this device becomes freighted with oral fluids and foods which shortly become disorganized by fermentation and induce disagreeable odors.

Others have advocated the use of a spiral spring, attaching same to the distal border of the obturator, and at its free end soldering a piece of gold—paddle shaped—to complement the faucal orifice, but this method, though it seems scientific and correct, shares in the same objections already cited. The spring and the hinge as well should not be used. There is no need of the hinge or spring; they are useless and do not accomplish the results desired. The hinge, with its appending piece of gold representing the velum, hangs in the mouth and obstructs the tongue and does not move readily to close the nasal cavity. The gold is too heavy and when constructed thin and light it fails to be of sufficient rigidity to withstand the action of the food while being forced into the esophagus. In fact, the artificial uvula need not hang—as a curtain. Its function, as I have emphasized, must be to act as a door between the nose and mouth. To further prove that the velum is not so all-important as a sound producer or vibrator, I am pleased to say in a recent conversation with Dr. D. A. K. Steele, oral surgeon of the dental department of the University of Illinois, he stated that he frequently snips away portions of the vula when it seems to interfere with the action of the tongue. In fact, Dr. Steele added that nose and throat specialists quite often remove considerable of the velum without injuring the power or quality of the voice.

Now with these facts as a basis it would seem good practice to disregard the construction of the curtain or velum.

There is a possibility that an obturator constructed with a flexible velum made of clasp metal or so attached as to admit of ready anti-posterior movements would be a serviceable appliance. I have one under way, but am at this time unable to give you the character of its action, since I am in search of a metal or combination metal which will yield as velum rubber, and this would avoid the use of rubber and dispense with the hinge or spring.

What I desire to impress you with is the thought that the uvula is not the all-important feature in sound modification or production, but it is essential as a door. This statement may seem out of accord with what we have been taught. I know I am standing on

dangerous ground, but we often learn when we go away from old and beaten paths, and recent surgical procedures indicate the velum is of secondary importance as a vibrator and sound producer.

The correction of cleft palate by the surgical method is oft unsuccessful in that the operation does not result in producing a perfect valve. It does yield a flap or pendulous velum, but, as before stated, this is of less importance than to be a true door between the nose and mouth.

It is impossible to surgically produce the fleshy portion so it will articulate or come in apposition with the distal portion of the faucal walls. Nature in healing a cleft or V-shaped opening proceeds to deposit granulations at the narrowest part of the wound and continues to heal until the wound has healed straight across at its most distal edge, margin or border, hence we cannot grow or develop a true uvula, nor is it practicable or possible to engraft a velum at the distal margin of the soft palate.

This goes to emphasize the remark that when the surgeon's work has ended the prosthesis's labors should begin, the one procedure being to the other as the string to the bow—mutually essential.

Again, since it is not imperative that the artifice be pendulous or be suspended, it is all the more certain that the final steps should be left to the prosthesis.

In the past appliances were of a most intricate character and only the ingenious were able to afford the patients service, but late years have established new ideas founded on scientific observation.

We are disposed to think the restoration of cleft or perforation of the palate less difficult than was supposed. The question now remains: How to retain the appliance rather than methods of restoration?

The profession has been especially non-progressive along this line because the general practitioner has believed the cases too difficult and intricate to handle and hence do not treat the case. A few—a very few—a very few—have given the matter serious thought and made progress, while the profession as a whole avoided accepting the unfortunate patients. And when the practitioner did take interest in the case he recommended that he consult with some specialist. The result is the profession has neglected a most necessary element in true advancement—namely, study the case yourself and never send a patron from your office unless you positively feel incapacitated. I am safe when I say only very few give any consideration to restora-

tion of disturbed palates. Recently while attending a large gathering of dentists I asked how many possessed flasks intended for vulcanizing artificial vela, and one gentleman answered, "I bought one years ago, but never used it." How can we expect great advancement in this particular unless the practitioners generally apply themselves and by this universal concern gather notes, observations and freely compare. Ours is a profession founded on art and science, and the former is an outgrowth of comparative methods. To advise, correct and amend that is what we are gathered in convention for and all must contribute if we hope to be a broad and liberal calling, not narrowed down to a few fads or special departures, but awake to the great needs of the suffering human race.

Ask yourself the query, "Are the afflicted and unfortunate receiving their quota of professional attention? What is being done for the thousands of persons who have impaired or disturbed palate and uvula?" There is scarcely a village in our land that does not count in its population individuals of this character. Our noble profession is not granting these afflicted souls the consideration that our humanitarian spirit prompts. Let us resolve to show our compassion and professional sympathy for these unfortunate neighbors and build for ourselves a character meriting the good will and admiration of the general and not the special public.

(To be continued.)

## OPERATIVE DENTISTRY.

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## CHAPTER XXI.

## CONTINUATION OF GOLD AND PORCELAIN INLAYS.

When cohesive gold was first introduced and advocated as a filling material of especial value, it met with all the skepticism and often pronounced opposition that pertains now to the inlay by those who have not yet mastered the art of making them.

Of cohesive gold it was argued that no close adaptation could be made to the walls of a tooth cavity with a substance that so quickly became stiffened and unyielding in manipulation; nor was it believed that it could be properly condensed through the body of the filling for like reasons. Building out any sort of extensive contours to restore lost parts with any idea of having them permanent was looked upon as absurd and contrary to good common sense; and all these objections were born out in the early experiences of many operators who had not familiarized themselves with the technic of handling cohesive gold enough to obviate these troubles. Operators used to non-cohesive gold tried the cohesive a few times and failing to comprehend its important qualities, or to properly handle it, gave it up and were free to denounce it as a delusion and a snare. Conservative men held aloof, waiting to see how others succeeded and what the test of time would show. But a few who did comprehend the peculiarities of cohesive gold persisted in mastering it under various conditions, bringing invention of implements and appliances to aid them. Automatic, electric and pneumatic pluggers, with specially designed points, were the outgrowth of the introduction of cohesive gold, and have done everything to make the gold thoroughly practical and subservient to the will of the operator. The rubber coffer dam, as it was called at first, made possible and practical the use of cohesive gold. Without it, or a good substitute (and is there any?), many cohesive gold fillings are quite impossible. Without it but few cohesive gold fillings would have been put in.

Obstacles and prejudice were found at every turn in the beginning of cohesive gold; but eventually it came to the front as the one thing *par excellence* in making good, substantial and artistic fillings; and time was when there was not a little pride among the cultured



and fashionable (in this country, but not abroad), in exhibiting the bright, yellow settings in the teeth.

To-day, few operators use non-cohesive gold in any way in filling teeth. The practice is well nigh obsolete; so much so that dental colleges teach mainly or altogether the use of cohesive gold.

Whether a good and reliable filling or not the inlay is another decided innovation, and has to go through all this doubt and criticism, just or unjust, and hence, while comparatively a few men have become proficient and convinced of its real worth and importance, the rank and file are still wavering and wondering if it is anything more than a fad—a bubble that will burst and vanish eventually. Others imagine that the skill and delicacy required is beyond them, or it is going to take too much time and strenuous application to be able to practice inlay work. (A man skillful enough to make good cohesive gold fillings ought to have plenty of skill to make inlays.) Still others may feel they have no demand for the inlay, hence need not bother with it. This bother, however, they would consider a blessing so far as it concerns the practitioner himself when they once got into the work, since it would relieve them of so much back breaking and nerve racking strain, not to mention how much of the discomforts of the dental chair of which it relieves the patient.

The inlay has come to stay, and is so permanently fixed as a part of up-to-date dentistry that the dental colleges make it a part of their curriculum, and in some have established an inlay department under the instruction of a special demonstrator. Yes, the inlay has come to stay, even though it should have its limitations, which, however, in the opinion of the writer, are confined to cavities too small to be advantageously filled with an inlay, and to perhaps a few so located that the inlay is not practical or at least readily adapted. The dentist who does not consider the inlay worthy of his serious attention will possibly awake to the fact some day that he is not up-to-date but behind his neighbor.

In the estimation of the writer a fine preliminary to the porcelain inlay is the gold inlay, which is eminently proper for bicuspid and molars, and may be made, of course, for anterior teeth, though the time has come when people of culture and refinement, and consequent good taste, demand that the show of gold in the front teeth, if not all the teeth, be eliminated from dental reparative operations.

The preparation of cavities and making of matrices for gold inlays

is very much the same as for porcelain, and likewise the setting. The main difference between preparation of cavities for gold inlays and for porcelain is that a beveled margin may be made for the former, where the sharp and distinct corner (margin) is required as a rule for porcelain. The gold inlay can be made very often in a few minutes; almost always in less time than it would take to make a filling of gold, and it can be done with the regular soldering outfit with which every dentist is supposed to be supplied and with which he is familiar; therefore, he can go to work along this line without buying a new outfit and experimenting with it, sometimes to his sorrow, before he gets familiar with all its crooks and turns.

To make gold inlays the proper material for making the matrix is needed and it may be thin pure gold (34 to 38 ga.) or platinum foil, such as is used for porcelain work, one one-thousandth of an inch thick.

Some gold inlays are made solid and some large ones are made hollow, being, however, thick and strong enough to be of good service. The hollow or box inlay is desirable in many cases and is really very easily made by several methods. A good way is as follows: Of course, the cavity is prepared so that the matrix may be readily lifted out or even sometimes blown out with a chip blower. Cut a piece of the gold or platinum large enough to overlap the margins after the middle has been carried to the bottom of the cavity. The first thing to do is to get the matrix carried to the bottom of the cavity, no matter how much it crimps and folds up. This is usually done not with hard sharp cornered instruments but with a pellet of cotton slightly wet. Held tightly to the bottom the work of gradually expanding and spreading out begins, first to the walls and then over the margins. Forcing a little lump of camphor gum into the pit (the cavity) in the matrix presses the matrix well to the walls, the gum being hard and tough enough to do that, and it will usually hold the matrix firmly in place while the burnisher is used to carry the matrix out over the margins. When matrix is withdrawn the camphor may be burned out without leaving any debris behind. The matrix may now be stiffened up, over most of the interior of it, by flowing 20 or 22K. or even pure gold in it; after which it may have a hole about 1-16 to 1-8 inch in diameter cut or punched in the bottom, and then may be returned to the cavity for more perfect adaptation to every minute inequality of the margin and to correct any distortion due to cutting the hole.

Now the interior should be touched over with a little soapy water and a piece of warm modeling compound inserted in which to take the bite. After the bite the compound is trimmed and carved exactly as the finished inlay is wanted. This may often be done in the mouth. Now a piece of pure gold, 34 or 36 ga., large enough to entirely cover, may be burnished over the compound and into all equalities, until it fits down all around. The bite may be taken again with gold in place and after seeing that it touches matrix all around, all may be taken out, the compound removed, which will readily come away with a little heat, and the lid or top carefully adjusted as it belongs. Now, holding the two parts together at the edge with pliers attach a little—just a little—20 or 22 K. solder to some part of edge, pass it into the flame of your soldering lamp or Bunsen until the solder flows. The two parts so fastened may now be returned to cavity for further fitting of edges, if need be, and then removed and through the hole in back enough of solder may be introduced to give all the strength and thickness required to withstand mastication which is made to flow all over the inside of inlay. It may then be trimmed as the marginal line indicates, and very little need be done to finish it, most of which may be done out of the mouth. In setting this inlay cement enough is used to fill the hollow, and before it is hard the margins should be burnished while the inlay is held tightly in place. If the cavity should be a proximo-occlusal of a molar, for instance, after it is prepared, and matrix fitted, a strip of thin metal should be passed between the teeth before introducing the modeling compound to keep a little space there and help shape that side of the wax for the proper contact. When the shape is as desired this strip is to be removed, leaving room in which to put the gold (carried surely down to margin), which is to form the proximal side and top of the inlay, and to be burnished to the carved compound as above described, especial pains to be taken to get close adaptation at the cervical and all other margins or borders. All the soldering should be done in as low an alcohol or Bunsen flame as will melt the solder. Too hot a flame often does damage to thin gold before we are aware of it. The matrix and lid should be held together at the edge during soldering and not in a way to endanger distorting the inlay in the flame as might be done by holding it in the middle with pliers compressing it while softened with heat. If it cannot be held together safely otherwise, use binding wire or asbestos string.

Solid gold inlays are generally made, building to shape desired, by adding pieces of gold plate and flowing solder about them until the matrix is filled out to required form and dimensions. A cup shaped cavity, and consequently a cup shaped matrix, may often be flowed full of solder without adding bits of gold; but any building out requires something of higher grade for the solder to follow. In that way cusps may be formed, in crude shape, of course, to be afterward finished to more perfect form and smoothness, as must other external surfaces, some before and perhaps some after setting.

A solid gold inlay may be made in the following manner: Take for illustration a simple sort of bowl shaped cavity in the occlusal surface of a lower molar. Burnish in platinum foil as heretofore described. Take about as much crystal gold as you think needed and make it into a roll, or ball, or cone, with the fingers, and put it into the matrix in the cavity and force down with a large instrument or with the finger. Then with small instruments see that all grooves and fissures are reasonably well packed. Of course, moisture is kept away so as not to interfere with work, but now let the patient bite into the crystal gold (no harm to get wet), after which mold the rest of gold to the shape desired in the finished inlay. When this is done remove the whole thing and flow in solder in a gentle flame until the crystal gold shows saturation, taking care to get none on the cavity side of the inlay. To avoid this it would be well to paint it with whiting and alcohol. In this kind of inlay too hot a flame will begin to melt and change shape of the crystal gold, when it will be necessary to go back to the cavity and with a new surface of crystal gold get a new bite, etc., as before.

Crystal gold will drink up solder like a sponge takes water, and the combination of pure gold and 18K. solder makes equal or better than 20K. in finish, depending somewhat, of course, on how compact the crystal gold is.

Solid inlays may be grasped by the sharp blades of cutting pliers and held while filing and grinding in finishing, but care must be taken how we pinch with force a *hollow* inlay unless it has been made pretty stiff and thick. A great deal of the finishing may be done outside the mouth, leaving little to be done after setting. If the cutting pliers mar the inlay so as to interfere with pressing it to place the out-turned metal may be filed off, and cavity surface should be pretty well scratched with edge of a file to give a cling hold for the cement.

With the crystal gold in some simple occlusal cavities, the writer has made an inlay, after cavity was prepared, in fifteen minutes. The same cavity, to have adjusted the rubber dam, etc., and filled with gold malleted in, would have taken three times longer.

To get familiar with the work make some inlays out of the mouth.

In regard to fees, a better price than for a gold filling in the same place should be secured, for the reason that you can make an inlay filling that will *preserve* with absolute certainty, if cavity is free from decay same as should be done in preparation for any filling, and for the reason that you save the patients' time and save them a good deal of the pain and discomfort that would attend adjusting the rubber dam and malleting in gold foil. With hydraulic inlay cement, a cement that should be wet to facilitate setting, no dam need be used. Most people hate the dam as much as the boring or malleting. If we relieve them of this and of much of the discomfort there should be no cheapening of the service, and most anyone would choose quickly the inlay at the same price as the gold filling, if satisfied it was as good or better than the latter.

The average of inlays that fail, from being dislodged, owing to imperfect cementation, is nothing compared with the average of fillings that fail through imperfect anchorage or decay that destroys the hold. A faulty filling may stay in a year or two, but does not preserve the tooth. An inlay may occasionally loosen its hold and come out, but never from decay around it. As long as it sticks it preserves. It hermetically seals; and the average that come out on account of fault of cement, mostly, is small compared with those that remain doing good service. Plenty of gold inlays are in evidence that have been doing perfect service for fifteen or eighteen years. Porcelain inlays of some of the early workers have been in nearly as long.

Gold inlays have an unquestioned strength superior to porcelain, and for posterior teeth are bound to do good service. Slender prongs can be made of gold to give better anchorage that would be impossible with porcelain; and yet, if the aesthetic aspect is to be considered, the porcelain inlay may be safely put in almost any part of the mouth, by expert porcelain inlay workers.

Aside from the building up, baking and getting proper shade of porcelain, gold inlay experience will be a help to porcelain work taken up later.

(To be continued.)

## DENTAL THERAPEUTICS.

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

### CHAPTER XXI.

As we have previously indicated, dilute solutions of the various forms of iodides and bromides are easily absorbed from the alimentary canal. They are more readily absorbed, however, if they are introduced into the intestinal tract as chlorides. With considerable solutions some of the salts of these metals permeate the epithelial, and it is possible that many may remain entirely unabsorbed. Little is known of the effects of these salts with the exception of their action on the intestinal tract, which has given to them a very prominent therapeutic use as cathartics.

As we have just said, the chlorides of potassium and sodium are very rapidly absorbed, consequently they do not serve the purpose and are very little used where a saline cathartic is indicated. The sulphates, phosphates, tartrates and citrates are the principal compounds of those metals which enter into, and are pharmacologically classed as saline cathartics.

In the combinations of salts previously mentioned, the only clear explanation of the combination of substances is by the so-called ion theory, where each element acts upon the other in a way that really makes a compound which may be split up with a great deal of difficulty, or be broken up with the greatest of ease. It apparently is true that the chlorides of these metals are more easily disassociated or broken up than such forms, for instance, as the phosphates and sulphates. There is some discussion as to which of the ions produce the action on the tissues. In the majority of instances, no doubt, it is due to the acid constituents or anion rather than to the base of the compound, which is classed as kation. Especially is the last named element in the compound less likely to be the one that affects the tissue if it exists as a chloride. Some exceptions to this rule may be cited in the case of chloride of magnesium, which disappears from the intestinal tract very slowly; however, it will be remembered that the magnesium itself is more slowly absorbed

through the epithelial lining of the intestinal tract than is the potassium or sodium ions.

One noted fact must be borne in mind, and that is, that the action is more effectual as a cathartic when both the acid and base are slowly absorbed. This is illustrated in the action of the sulphate of magnesium, which is known to be the most powerful in its action as a purgative. It seems that there really is but little difference in the absorption of these various metal ions. When they come in contact with the epithelium as a sulphate, they are not so readily acted upon by the epithelial structure as they are when they exist in the form of a chloride, especially if it is the magnesium sulphate which is known as Epsom salt, the sulphate of sodium known as Glauber's salt, and the double tartrates of sodium and potassium (Rochelle salt). The oxides and carbonates are quite soluble in the intestinal tract, consequently they are also classed as cathartics.

Most of the salts classed under the head of cathartics have a bitter, unpleasant taste, and if taken in considerable quantities they act upon the stomach in a way that causes nausea, and at times very uncomfortable feelings. In some instances may be followed by pain and griping, but in no instance will they produce this condition with the frequency or the severity as will the so-called vegetable cathartics, which have a more or less irritating effect on the epithelium of the intestinal tract. The metallic cathartics cause but little, if any, irritation to the intestinal tissue, and it is supposed that their action is principally due to their prevention of absorption. It has been found that a sodium chloride isotonic solution with the blood serum, injected into the dog with an intestinal fistula, is absorbed before it reaches the fistula, while if the sulphate of sodium is administered in the same way it can be detected in the fistula contents. This illustrates very conclusively the rapid absorption of the chlorides in comparison with that of the sulphate. If a hyperisotonic solution is placed in the bowel its action is somewhat different, owing to its higher osmotic pressure than that of the blood. It draws moisture from the tissues while an isotonic equalizes the osmotic pressure, thus preventing the absorption of moisture.

In the exchange of salts and fluids, with the intestinal tract and the blood, there is a considerable complex action which one will soon compensate for the loss of the other. When sufficient moisture is drawn from the tissues into the intestinal tract to make the solution of the salts isotonic, the tissue will then begin to make up both the

salt and the fluid which has previously been made isotonic by the tissue. However, it may be reasoned that if the tissue is not well supplied with moisture, absorption of the metal in any form will only be accomplished with difficulty; for it is a well-established fact that an isotonic solution of these salts must exist in the intestinal tract before absorption can take place.

There has been considerable speculation as to why many of these salts are so slowly absorbed from the intestines. Some claim that in addition to the physical forces that are ever present and manifesting themselves, there is a distinctive vital cellular activity that must be constantly at work in order that many of these saline cathartics can bring about their characteristic physiological action. While on the other hand, some believe that there must be a distinctive chemical or physical affinity between the bowel epithelium and the various compounds of these metals. This might be illustrated in the instance of the chlorides being absorbed more quickly because of this physical or chemical affinity, while in the case of the sulphates that affinity is not so great, therefore, their absorption is much slower and their effects much more desirable as cathartics.

According to the experiments and observations of Hofmeister, the chemical and physical affinity of the cells is the most reasonable one. For instance, many of these salts, where only acted upon by the superficial epithelium of the intestine, their effects would be but very slight, but as a matter of fact they are taken up and acted upon by the deeper tissue structure. According to the author above named, the salts that act as purgatives have a greater tendency to precipitate proteids and are quite incapable of entering into the unorganized colloids, while those salts that are classed as non-purgatives have the reverse action. They enter more readily into the unorganized colloids but fail to precipitate proteids.

It has been a well observed fact that saline cathartics have almost a direct action upon the blood when they are absorbed from the intestinal tract. The stronger cathartic causes a concentration of the blood and in turn diminishes the quantity of urine, but after considerable quantity of the salt has reached the circulating blood the quantity of urine is usually increased. If the animal has been abstaining from water for some little time, the blood becomes concentrated, the salts are absorbed and the quantity of urine will immediately be increased.



From the above reasoning it will be seen that if the saline cathartics are intravenously injected they will have no special effect as cathartics, for their special action is that of increasing or rather equalizing the osmotic pressure of the fluid contents of the bowel and the osmotic pressure of the blood. The temperature of the animal is usually reduced a half of one degree.

Saline cathartics are many times used for obesity because they prevent, to a certain extent, the absorptions of proteids and fats, but as a matter of fact they have but little, if any, effect on the metabolism of nitrogenous substance; for it has been observed that the nitrogen in the urine is but very little, if any, reduced where saline cathartics are administered. When saline cathartics are introduced into the intestinal tract and cause no effect upon the bowel the salts usually pass off in the urine.

The therapeutic use of saline cathartics is principally confined to various forms of constipation. Probably its greatest value is in chronic constipation, which is usually the result of sedentary habits or lack of the body having the necessary exercises to continue the peristaltic movement of the bowels. Many of the natural mineral waters are used for this same purpose. When a thorough evacuation of the bowels is desired it can best be accomplished by the use of some of the vegetable purgatives at night, followed in the morning before breakfast with some of the saline solutions.

The saline cathartics are used many times to lessen intestinal putrefaction, not as an antiseptic, however, but for the purpose of cleaning out or freeing the intestinal tract from a large number of putrefactive germs that accumulate in the intestine and are carrying on many of the putrefactive processes. A compound that is used in childhood is the phosphate of soda. It has been highly recommended in cases for diarrhea in children.

The saline cathartics are administered many times to assist in removing large accumulations of fluid in the body which are there as cardiac and renal insufficiency, or from effusions of long standing. In such cases the sulphate of magnesium is used in large doses, dissolved in water; if this should not cause an action on the bowel in from one to three hours, enema may be necessary then. In the last named class of cases it might be well to bear in mind that a vegetable purgative could be administered some hours previous to the use of the saline salts. This treatment at one time received considerable popularity.

As has previously been stated, large quantities of these salts are beneficial in certain forms of obesity. For this purpose the mineral salts in the natural waters find considerable favor and are extensively used, especially when it is possible for the patient to obtain them directly from the springs and wells.

Where there is an acid condition of the stomach or bowels due to putrefaction, the magnesium carbonates are very beneficial. They cause less irritation than the carbonates of the alkalies because of their insolubility. The magnesium preparations may be used with benefit in cases of diarrhea and acid condition of the bowel contents, especially where the bowels have been more or less irregular in their action.

The sodium phosphate was at one time extensively used in bone diseases, as in osteomalacia and rickets. This treatment was based on the belief that there was not enough phosphate in the various food-stuffs, consequently, the idea was that in cases of rickets and various other forms of bone diseases patients should be fed on substances rich in phosphate, but long since this treatment has been abandoned with a belief that such a treatment is of no special value. The saline cathartics, especially the sodium phosphate, have been recommended in cases of exophthalmic goitre. As no one has been able to give any explanation as to its value in these cases the question arises, whether it has any value or not. These so-called saline salts have been administered in cases of uric acid diathesis. These agents have also been used in certain brain and nerve troubles. The use of sulphate of soda in case of phenol poisoning is an old treatment, but apparently has fallen into disuse because of its ineffectiveness in the majority of instances.

Ferrocyanide of potash has been extensively used in poisoning with iron and copper salts, with a hope that the ferrocyanide, which is an insoluble compound of these metals, would be formed and that the poisonous effects of the metals would be arrested.

(To be continued.)

# ORIGINAL CONTRIBUTIONS

## TOOTHsome TOPICS.

By R. B. Tuller.

(No. 17.)

The obicularis oris,  
Being in control of the external opening of the oral cavity,  
Comes pretty near being, when affected, within the sphere of  
operation and treatment by the D. D. S.

And particularly is this true of a prevalent affection peculiar to  
this muscle known as osculation.

True, some dentists have ventured to combat with this tendency,  
but do they do it understandingly and scientifically?

Some few have attempted to specialize; but when an operator  
poses as a specialist he must be prepared to take all cases that  
present, old or young, male or female, black or white, ugly or  
enchanted.

Surgery—the knife—seems to be their favorite method of  
handling all but a chosen few—damsels young and enchanted. To  
all others they say, “Cut it out!”

Osculation takes on different forms. There is the simplex, the  
duplex, the complex and the perplexing, not to mention the high  
pressure, low pressure, hard and soft pressure, and long and short  
pressure, together with the stolen, the red-ripe, the sear and yellow,  
the dark brown (wuh!), the diplomatic, the blackmailing (be-  
ware!), the all-around-d-foolish, and many others.

Well, when you think of it, there is a great lot that it would be  
mighty wise to use surgery on. “Cut ‘em out.” Anyway hygienic  
conditions are to be considered and advised, and pathogenic  
sequences to be avoided, and the dentist is as well qualified as the  
M. D. Why should the latter get all this business?

The simplex may well be illustrated by a delicate touch of the  
lips to the finger tips and propelling, nothing at all, through the air  
by a flirt of the hand. This may be sometimes called flirting.

The simplex is, *per se*, a rather harmless affair, provided the finger tips are previously sterile, but it has been known to lead up to extremely dangerous symptoms, and from that point of view should be treated and checked in early stages.

The dentist, however, has little to do with this form, unless, perchance, his advice may be sought. This should not be given without a full and complete history of the case. When you have that it may be more than likely wise not to "butt in."

This simplex is engendered between two persons more or less remote from each other. Pressure features do not enter into this because of distance. This is generally no fault of the persons afflicted—he and she.

The duplex, as the term indicates, involves two, and generally of the opposite sex. If it affects two males, as father and son, or two brothers, it is never violent or dangerous. It is not an infrequent affliction, however, between two young women, and may even appear violent, but it simply results in a waste of good material, and energies are exhausted for naught. It is positively foolish and should be treated drastically.

Between persons of the opposite sex duplex cases of osculation are sometimes very violent and dangerous; and particularly if aggravated by putting the obicularis oris of each under too long pressure; or if complicated at the same time by shortness of breath. This may be recognized by a sound that is like a cow's hoof pulling out of the mud—a long drawn out squee-ceeche. Of course this depends, to a large extent, upon who is at the other end of the squeeche. Anyway, look out for chronic pucker.

Now, I know a little girl—well, never mind; besides, I'm past 40.

Osculation, too long drawn has been known to waver the diaphragm and strain the duodenum. It is a duo affair, and the parties afflicted may never recover—and they don't much care. I am quoting from *old* and *reliable* authority on oral gymnastics.

There is a short and snappy sort of duplex—a sort of pop-bottle kind, that I don't much care for—I mean, I haven't gone deeply into such cases. There isn't much depth to them anyway. There are other features of the duplex, but it is too vast a subject for the few pages allotted to me.

The complex cases of osculation are only a part of the duplex variety and bring about little worries and disappointments that merge into the perplexing. A lady's veil may bring about com-

plexity and perplexity, and also a lady with a mouth full of pins—an extremely bad habit—or, even one with a hat pin—another *vicious* habit. Wow!

Then there's the man with a lambrequin moustache, filled, perchance, with the vile smell of tobacco; not to mention something, frequently called "forty-rod." If I was a nice, sweet girl, forty-rods would be the distance—and the limit.

Perplexing osculation, while embracing some of the above complexities may be further elucidated by mentioning cases where the wrong person is involved or where an unexpected head-on collision occurs between two nasal appendages; or where a cheek is presented when two ruby lips are sought; or where there is an unexpected intrusion, or a small boy is watching through the slightly parted portieres. Get out, you little imp!

It is a strange thing that doctors of dental surgery generally know so little about this human affliction so closely allied to the oral cavity, and considering, also, its prevalence. It is a wonder so many people are alive to tell the tale—and they don't most of them. They bear in mind the old song, "Osculate, but never tell." Millions and millions and millions of people are dead (and they will never tell) and yet the world goes on as though nothing ever happened to the osculators.

What does happen to them? Huh? Are you asking *me*? Well, I know a little girl—why, I just told you; millions of people die.

Say, if you want to get a realizing sense of the many dangerous phases of osculation, you take just one little oscu, extra dry, and put it under a high power microscope. A minum of the above has no less than 13,000,000 microbes.

I never counted that many in any microscopic examination of my own. I am quoting simply from reliable authorities. Refer to Cook.

What is osculation anyway? I'll venture to say that not one D. D. S. in a thousand can clearly define it. It has been defined as the quintessence of nothing with a hole in it and drawn out more or less intensely until distinct crepitation occurs. It not infrequently savors of onions, and more often of bread and butter. There is a measure of safety in this onion flavor, inasmuch as there is not so much tendency to linger longer Lucy, nor to repeat. I know, however, a little red rosebud—but I'm wandering again. The thing

to ask ourselves is this: Are osculations septic or aseptic, and if so, how much and what is the remedy? See?

Should not osculation cases come properly under the dentist's care? Absolute cures may not be effected, but a good dentist should be able to diagnose the symptoms that may develop into the real thing and proceed at once to render himself immune. This may be done by adjusting the rubber dam over his own mouth.

Osculation is catching; often on the cheek, sometimes on a front tooth, but rarely on the nose. It is very epidemic at all times, and it is well at all times to be prepared with antiseptics. Dioxogen is a fine prophylactic and leaves a nice clean breath. Pure carbolic acid is not indicated; it smells bad, tastes bad and may leave a scar. Reduce it one half with glycerine and then let it alone. I prefer rose leaves, violets, or even sen-sen.

Anyway, any affection of the obicularis oris comes unquestionably into the sphere of the doctor of dental surgery to treat. If an operation has to be performed, pressure anaesthesia may be indicated.

I know a little red rosebud of a mouth belonging to a little girl about four years old who now and then climbs up on my knee and, taking my nose in one dainty hand and my ear in the other, says, "Now, I'm doin' to div you a Stotsch tiss."

I feel better now, having finally made the confession. Nothing so very serious, but I didn't know what you might think.

But osculation of the obicularis oris in a general way demands of us our best endeavors to render an incurable affliction as free as possible of deleterious contingencies. A swat in the mouth is said to check fresh cases of attack, but that would not be becoming, and we should rather keep in mind the golden rule.

**Toothsome Topics Every Month.**

**BICUSPIDS AND MOLARS.**

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L. P. Haskell.

To myself one of the great annoyances in the construction of artificial dentures has been the unnatural shape of bicuspid and molars, and applicable to all makes of teeth, and which I have been for many years endeavoring to induce some of our leading manufacturers to correct in their moulds. I have called the attention of many dentists to the faults and, without exception, they had realized the faults, but had to use the teeth as they found them.

The faults are **these**: A large proportion of **teeth** are narrow **and** thin, with very little masticating surface, and, strange to say, they are often used with large or medium sized fronts, where they are entirely out of proportion.

The other, and almost universal, fault is in the length of the lingual cusp of the upper teeth.

In nature the lingual cusp of the upper is the shortest and of the lower is the longest. Instead of carrying out this principle in artificial teeth, the lingual cusps of the upper are as long as the buccal. This being the case, it is an impossibility to articulate such a tooth with a natural or artificial lower tooth without grinding the cusps. Then we confront another difficulty, found in the pins being placed so high there is but little cusp, and in grinding this what is needed there is so little left it soon **breaks off** in use.

What is the remedy? Simply placing the pins lower down, so giving more room for porcelain and shaping the lingual cusp shorter.

Having despaired of this change in the make of teeth, I have been using, at last I appealed to the 20th Century manufacturers, and they have now at least one typical mould of bicuspid and molars, No. "86." Using these in connection with mould "76," fronts, and the whole is one of the most perfect sets of teeth and affording me great satisfaction in using.

There is no necessity for much variety in the bicuspid and molars. This same mould 86 can be used on all wide and medium sets of fronts to great advantage. A shorter mould, of the same style, is needed for short wide fronts. And in the smaller fronts a small set of similar style is needed.

One thing should be observed that the long shanks below the pins are entirely unnecessary in any mould. The tooth should never

be set away above the margin of the gums; that is not nature's plan. So set the pins lower and get a good length of porcelain, looking more artistic as well as more useful.

### ACUTE STOMATITIS.

By J. Cambridge Wharton, M. D.

The patient, a male, twenty-nine years, was admitted to this hospital December 14, 1896, after a debauch of some weeks.

On admission his mouth and tongue were found to be covered with irregular, gray, dirty looking ulcers; the tongue was much swollen, soft and flabby, showing the imprints of the teeth.

There was extreme salivation, constant dribbling from the mouth, irritating the skin of the chin. The tongue showed many fissures and one especially deep, extending from the base to the tip. The breath was very foul and offensive; there was pain on swallowing, and a slight rise in temperature. Naturally there was little desire for food, for lack of taste, and the bowels were very inactive. There was no glandular involvement and there seemed to be no complication in the case whatever, and no doubt the trouble was induced by the excessive and long use of alcohol.

The treatment consisted solely of Glyco-Thymoline, one part to four of water, a teaspoonful of the mixture being given every two hours. Locally the mouth was washed frequently with Glyco-Thymoline, diluted with two parts of water. The effect of this treatment was marked from the first dose, and in five days the patient was discharged from the hospital fully recovered. While this case seems like a very simple one it is instructive from the fact that the recovery was so rapid.

Glyco-Thymoline has been found of great service in catarrhal affections of the nose and throat, especially when used with the K. & O. Nasal Douche.

### A PLEASED PATIENT.

There's not much comfort in a name. Your patient doesn't care whether it's a cavity, an exposed nerve or an ulcerated tooth. If there's pain, that's enough for the patient. And if there are Antikamnia and Codeine Tablets, that's enough for the dentist. Pain is often all there is to it. Stop the pain and you please the patient. Dentists when operating should administer one Antikamnia and Codeine Tablet every hour, giving one shortly before beginning the operation. One tablet before and one after extracting a tooth, will prevent the severe pain and consequent nervousness. Facial neuralgia, toothache and earache can be easily relieved with one tablet every hour or two.



# ABSTRACTS AND SELECTIONS

## FORTY-NINE YEARS AGO.

The Following Articles Were Taken From the Dental News Letter of July, 1885, and We Believe Will Make Interesting Reading.

### FACIAL NEURALGIA.

By R. W. Henderson, Dentist, Bangor, Me.

Between the respective spheres of the dentist and the physician, there are many points of approximation, and some few of actual contact. These latter form a sort of neutral ground, with which each party should be familiar, not only that each may the more clearly discern the boundaries of his own department, and thus be prepared to fulfill all its peculiar duties, but, also, that when occasion requires, each may be able to replace the other.

One of the most important parts of this disputed territory, is included in the general name of *prosopalgia*, which, though usually considered to belong to the province of the physician, often comes under the care of the dentist, for his professional advice or practical treatment. This treatment, whether purely medical or dento-surgical, must be wholly determined by the nature and cause of the disease, in each particular case. Every dentist needs to be well acquainted with all the various causes of *prosopalgia*, so as to be able to discover the nature and cause of any particular case, and apply the proper treatment, if it belongs to his own department, or even to supply the place of the physician, where required. We propose to supply what appears to us a deficiency in dental literature, in this connection, by giving a concise view of the nature, the causes, and corresponding treatment of the disease called *prosopalgia*, *facial neuralgia*, or *tic douloureux*.

*Nature*.—The seat of this disease is usually in one of the three branches of the trigeminus, tri-facial, or fifth pair of nerves; of which the ophthalmic branch is distributed to the orbit, the lachrymal

gland and integuments and muscles of the forehead; the superior maxillary branch is distributed to the upper jaw and side of the face, while the inferior maxillary is distributed to the tongue, and to the muscles and teeth of the lower jaw.

Prosopalgia occurs usually in paroxysms of intense pain, of a beating, throbbing, plunging or lancinating character, in the temple, over or under the eye, before the ear, along the course of the upper or lower jaw, or over the whole side of the face. These paroxysms sometimes return with great regularity, at particular seasons of the year, as the spring or fall; they may also return with equal precision and violence, at a particular hour of the day or night, and as regularly disappear; or they may continue, unless relieved, with greater or less intensity for days and weeks, and even months. The neuralgia may be fixed in one spot no larger than a sixpence, or it may rapidly change from one place to another, or gradually extend over the whole side of the face. It is often exceedingly obstinate, and in some melancholy cases, where no special cause could be discovered, has proved utterly incurable. It is called *local*, where it results from affections of the face, mouth, jaws or teeth; *functional* or *sympathetic*, when it appears as the manifestation or result of disease in some other organ, as the stomach, liver, etc., or in some other portion of the nervous system; and *constitutional* or *idiopathic*, when it comes on spontaneously, or as the result of malaria, or cold, or of a rheumatic or arthritic habit. Considered as a disease of the nervous substance, prosopalgia is usually a functional, seldom an organic derangement; still more rarely does it become a structural disorganization. This is evident from the suddenness of its accession and departure, and from the fact that at the expiration of the most severe and protracted paroxysms, the nerves are left unchanged in action or sensation.

*Causes.*—Prosopalgia has been attributed, with more or less reason in particular cases, to repelled eruptions; to inflammation of the nerves of the affected locality; to a plethoric state of the vessels of the neurilemma, or those accompanying the nerves through the bony canals from the interior; to caries of the jaw or teeth; to disease of the encephalon; to irritation of the spinal column, or ganglionic centres; to hysteria or disturbance of the uterine functions in women; to derangement of the stomach and chylopoetic viscera; to mental or moral excitement which exhausts the nervous system; to the excessive use of coffee and of tobacco; and to quinine or mer-

curial cachexia. It may be caused by wounds, either surgical or accidental, often at a distance from the sentient extremities of the nerves; or by any foreign body, or other source of irritation in the trunk of the nerve. And it may appear in consequence of severe debilitating losses of the vital humors; or even from want of sleep. Some of these causes merely develop a pre-existing or hereditary disposition to this disease, which may occur in young and plethoric, or in very nervous persons; in strong and robust, or in excessively debilitated constitutions, especially in those which are hereditarily rheumatic or arthritic. We shall speak more particularly of the most important of these causes of prosopalgia, as we proceed to the consideration of its proper

*Treatment.*—No general rules can be laid down, since the treatment of each particular case must be governed by its cause so far as that can be ascertained; but it will, of course, be greatly facilitated where it is possible to fulfill that first indication of all treatment, whether medical or surgical, *tolle causam*, remove the cause. The cause may sometimes be readily discovered and easily removed, and with it the whole disease; while in other cases the cause may be very difficult, or absolutely impossible to discover, or to remove; or the disease may still continue after the apparent cause is, more or less, completely removed. Where prosopalgia appears in connection with decided functional disturbance of the stomach, liver, bowels or womb; or with any other disease, whether local, as in the jaw or teeth, or general, as in the cerebro-spinal system, there is little difficulty in discovering the efficient cause, which must suggest the corresponding course of treatment. But where the prosopalgia is the only apparent disorder, the mode of treatment is less obvious, since the disease may be either idiopathic, or dependent on some unknown and unsuspected lesion. It is for this reason we enumerate so many causes of prosopalgia, that an obscure case may be diagnosed by the method of elimination. But for our present purpose of pointing out the great principles of treatment which may comprehend every variety of case, we arrange all these causes, the unknown as well as the known (and thus all the kinds of the disease itself) in three classes, the *local*, the *functional* and the *constitutional*.

I. The local causes of prosopalgia may be divided into the dental and the accidental. The former includes carious teeth and stumps, and various diseases of the jaws and gums. Sometimes a single

stump is so completely covered by the gum as to be forgotten by the patient and in danger of being overlooked by the operator. Says a writer in the London Lancet, "I lately had a case (of prosopalgia) dependent on a stump which was in the upper maxilla, and it was one of great severity and difficult to diagnose. The stump was covered over by the gum, except a small aperture hardly wide enough to admit the head of a pin. I ordered extraction and the disease vanished."

The wisdom teeth may cause intense prosopalgia, both in cutting and decaying; still more when, as is not unfrequently the case, the latter of these two processes accompanies or even precedes the former. In either case the exciting cause can be diagnosed only by a careful and intelligent examination, since the offending tooth often appears quite unaffected. During the period of cutting the *dentes sapientiae*, usually between the ages of eighteen and fifty (the very period in which people suffer most with neuralgias), the person may suffer with stiffness of the neck and a sensation of fulness in the head; as the tooth advances the gums become hard and stretched, and the darting pains along the nerves of the face, temple and neck, are very severe, sometimes accompanied by salivation, noises in the ears, discharges from them and deafness.\* All these symptoms may be at once relieved by freely lancing the inflamed gums. The diagnosis of prosopalgia from the decay of these teeth, is still more difficult, not so much from the fact of this decay beginning before the appearance of the teeth, as from the pains being rarely felt in them, but in the bicuspid or cuspidati, or even in the chin. These hints will show the necessity of the most careful and thorough examination of the mouth, in order to detect in its hiding place, the exciting cause of this painful disease.

The other local causes, such as wounds, cicatrices, etc., etc., being more palpable are less liable to be overlooked. We will only add in this connection, that in those obstinate cases which resist alike all constitutional treatment and all local or specific applications, there is always reason to suspect existence of some obscure cause of irritation which must be looked for in the course of the affected nerve, and which will often be found at a distance from the apparent seat of the disease. And the reproach which is cast on the so-called local modes of treatment, consisting of the external application of

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\*Dr. Castle.

veratrina, strychnine, belladonna, aconitine, tobacco, etc., comes not from their not having, each of them, made splendid cures, but from their having been unsuccessfully employed in cases where, from the constant presence of some local source of irritation, they were, of course, incapable of doing any good.

II. *The functional* causes of prosopalgia, which constitute our second class, most frequently consist in derangements of the digestive organs. But it is not a simple or isolated case of indigestion which ordinarily brings on this formidable disease. This derangement must become chronic, involve the liver, and thence induce an inactive state of the bowels, in which the *fæces* sometimes accumulate for a long time unnoticed, and to an enormous extent. In some of the worst of these cases of scybala, the removal of the hardened mass, perhaps by taking off the pressure on the facial nerves, may at once relieve the prosopalgia. But in others, this disease is the result of a general derangement of the digestive functions, which must be, more or less, removed before the neuralgia will abate; and this will require a long continued and skillful treatment. Still the various forms of constipation comprise the most common causes of functional prosopalgia. A person may have a daily stool, and yet so hard and inefficient that the habitual constipation may cause and keep up this disease; or he may have a daily loose evacuation, while, unknown to himself, the upper bowel may be distended by hardened and slowly accumulating scybala, which seem endowed with the power of causing the most intense prosopalgia, as if on purpose to remind us of their dangerous existence and growth. The characteristic of prosopalgia from this cause is, that it gradually increases in extent and severity (with the gradual increase of its cause) and becomes diffused over the whole face.

The long train of symptoms, which, beginning with indigestion, ultimate themselves in this form of constipation, and by their reflex influences bring on this dreadful nervous disease, may be most effectually removed by the tincture of *nux vomica*, given twice a day in the minutest doses. And this potent remedy has a still further recommendation in that it acts directly and specifically on the nerves of the stomach, liver and bowels; and thus removes at one and the same time the primary and secondary causes of the disease, and the disease itself. The worst cases of accumulated scybala may require surgical, or rather, mechanical assistance to bring away the hardened mass which may be distinctly felt through the abdom-

inal parieties, and which becomes so impacted in the bowel as to render it quite incapable of relieving itself. These cases are often successfully treated by continued injections of diluted *ox gall* enemas, by which (assisted by pills of the desiccated gall), the hard and dry faecal mass is gradually softened and brought away.

Females, it has been remarked, are more subject to neuralgia than males. This may be owing, in part, to the greater sensitiveness and delicacy of their organization, and in part to the fact that in the womb and its dependencies they have an additional system, which, from its great importance and liability to derangement, becomes the fruitful source of a large proportion of all their sufferings. The simplest hysteria may, and often does, assume the form of a facial neuralgia; and the various grades of functional and structural disease of the womb and vagina are the most constant and often unsuspected causes of the severest prosopalgias. Indeed, some fixed neuralgic pains in the top of the head are now regarded as positively indicative of uterine derangement. As in disease of the mucous membranes, the inflammation often appears only in the external orifices; and, as in phlebitis, the poisonous matter is conveyed to a great distance from the original seat of the disease, and there forms new abscesses; so disease of the womb, which must be regarded as the great nervous centre of the female organization, may, and in fact often does, manifest itself in any part of the nervous system. And, since hysteria confessedly simulates the form of almost every other disease, how much more probable that it should sometimes appear as a prosopalgia? Such, experience shows to be the fact. But the proper limits of this paper, will only permit us so far to call attention to the various degrees of sensational, functional and structural disease of the womb and vagina in females, as constituting the principal cause of the distressing neuralgias to which so many of them are subject.

III. *The constitutional* causes of prosopalgia form the third division of our subject; but the consideration of this part, together with some notice of the most successful *specific remedies*, both external and internal, must be reserved for another article.—*Dental News Letter*, July 1855.

## FACIAL FISTULA.

By J. W. White.

We are induced to give a few cases of fistulæ, which were produced by the roots of teeth, inasmuch as a great number came under our observation after they had been treated for a long time by good medical or surgical practitioners.

*External incomplete fistula* may occur in the face from many causes, such as diseased bone, lodgment of foreign bodies, or teeth in which the pulps have been for a long time dead, etc. When first we came into the profession, we always thought it "a feather in our cap" to treat such a case after it had been unsuccessfully treated by a medical man. We supposed that a medical practitioner who failed in treating such a case, belonged to the lower order of the profession; but we have lived long enough to find that the best in it are constantly liable to fail, or to give an erroneous diagnosis in the same kind of cases. We have never yet met with a medical practitioner who was fully satisfied that it was only roots of teeth in which the pulp was dead, that produced *alveolar abscesses*, and that they may open through the gum only, or through the face externally.

Case I. Miss——, about seventeen years of age, presented herself to ask advice about a fistulous opening on the apex of the chin. She was being treated at the time by an *herb doctress*, who agreed with a number of medical men who had been consulted, that it was *cancer*. This doctress intended, after the "*roots were dead, to pull it out;*" and showed the fair patient a number of similar ones with long roots, put up in jars, to illustrate the usual success of her treatment.

Case II. A young lady, Miss ——, about twenty years of age, was brought to us by one of the most distinguished medical men of this city. He submitted the case to us to know whether it was a "medical or surgical case," as he had been treating it for about eleven months. He had tried everything in the *materia medica*, that he could think of, and to no avail. He said, as there were two openings, one on the top of the gum, in the location of the wisdom tooth, and one on the neck, about an inch below and opposite the angle of the inferior maxilla, he could not account for this state of things; both openings had been treated with caustic, and syringed out with various substances, but still showed no signs of healing.

We believed the opening on the top of the gum, which was small, to be produced by the gum which had contracted over the root of the wisdom tooth, which had been broken off in attempting to extract it, and that the external opening was the alveolar abscess opening outside. The patient, however, protested against this, that she was sure that the tooth had been extracted entire, and that the dentist showed her the *whole* tooth. This was not the first time that we had been told by patients that the dentist had shown them a *whole tooth* to prove that they had succeeded in extracting, when they were only broken off, and therefore we were prepared for the case. We cut down through the gum freely, and extracted a large root of the wisdom tooth, after which the external opening closed in a very few days without any further treatment.

Case III. A young lady, Miss ———, over twenty years of age, was presented to us by her father, an eminent medical man of our city. She was attacked with an enlargement of slow and not painful growth, in the region between the canine fossa and the infra orbital foramen, right side, accompanied by a slight flush on the cheek. Finally a tumor was discovered, of some size, deeply seated in the cheek, which could be approached from the inside of the lip. An eminent surgeon was called in consultation, and it was pronounced a *melicerous tumor*, which it was advised should be cut out, and which was accordingly done. It was dissected out from the inside. We were told that the whole of the "sac" was removed, and a portion of the mucous membrane also cut away, and the parts touched with caustic, to promote a speedy union; but it did not succeed. We believed that it was caused by the second bicuspid, of which the pulp had been a long time destroyed. It was extracted, and the parts healed up speedily and kindly.

Case IV. Mrs. ——— called to see us, to obtain an appointment to have some operations upon her teeth. We at the time observed an opening in her cheek, left side, immediately below the infra orbital foramen; it presented a purpled hue, raised somewhat above the healthy surface, with a depression around its border, between the healthy and unhealthy parts. A little serous pus was percolating through the whole surface of the diseased part. We immediately asked the patient to sit down, and we would remove the teeth at once, instead of waiting until the time of her appointment. She was very much surprised, and answered that she did not want any teeth extracted, only plugged. We remarked, however, that it is



necessary, to cure her face. She expressed much more surprise at that, as the disease in her face did not depend upon a tooth; that it had been there for about two years, and had been treated by her medical adviser, and two surgeons had been consulted about it, and they had come to the conclusion that it must be cut out, as it was cancer, or would turn to that if it was not already; and she had made up her mind to have it done. We assured her that the second bicuspid tooth in which the pulp had been dead, as we ascertained, for about eight years, was the cause of the difficulty. She had the tooth extracted, and the parts healed up in a short time. In this case, it had never been suspected that a tooth was the cause of the ulceration in the face. This patient's health had been much impaired by the anxiety of mind, and the medical treatment she had undergone, and the low diet to which she had been for so long a time restricted.

Case V. A middle aged lady, Mrs. ———, was sent to us by a medical gentleman of high standing; she had been treated before applying to him by a surgeon, for *lachrymal abscess*, for about three months, but without any signs of improvement. We found that the second bicuspid tooth of that side was dead; there was no cavity of decay, but it was blue, and had a black spot on either side. This tooth was extracted, and when broken open the black spots of both sides stained the tooth entirely down to the pulp cavity, which was filled with a foetid pus. This case was complicated with the antrum, but the parts became entirely healthy in a short time. We might well exclaim here, how can these things be in this enlightened age of medicine? We have given here but five cases, each varying a little in their character, but we could readily add a hundred. These are cases which demand from the medical profession more attention to the teeth, and from the dental, a much closer study of the diseases, which generally come under the head of surgery.—*Dental News Letter*, July, 1855.

## A NEGLECTED ABSCESS.

By Arthur J. Prytz, D. D. S.

During a course of study at college one hears much and reads much upon the many whims or peculiarities of abscesses of dental origin.

Such a case is the subject of this paper, and I am simply going to relate one of these whims that has come under treatment in my own practice quite recently.

A very healthy-looking country girl was under the care of Dr. A. L. Kenney—eye, ear, nose and throat specialist, Melbourne—for the correction of some eye defect.

A swelling of the lower jaw, on the left side, was noticed for some little time, and, upon the advice of Dr. Kenny—I was called in to see the case. After a little talk, a history of a swelling was elicited, which seemed to come and go at different periods extending over twelve months at least. These swellings were accompanied by pain of a more or less severe degree. As both swelling and pain usually disappeared in the course of time, no notice was taken of the case.

Upon examining the mouth the first left lower molar was found to be the cause of all the trouble. It was very much decayed. The canals were putrescent. The gum was infected, and there was present a peculiar looking spot which looked as though there was or had been a fistula. Upon pressure, however, there was no flow. The face was very much swollen, tense and glazed, and the cheek presented a reddened spot. In addition the mouth could only be opened very slightly.

There was considerable reason to fear the abscess opening on the outside of the face, and its consequent ugly scar, and also of partial ankylosis, to say nothing of absorption of pus.

In consultation with Dr. A. L. Kenny, I advised the immediate removal of the offending tooth. On Thursday, June 9, 1904, I did this under  $N_2O$ . Needless to say, this had to be done with great care and under considerable difficulty, owing to the small opening of the mouth and the highly swollen condition of the parts *in situ*.

The patient was ordered to keep the bowels very free, and the following salve was prescribed:

R. Calomel...	...	...	ʒii.
Cosmolin	...	...	ʒi.

To massage the face freely with this, when in the house to keep the face well smeared with the salve, and to continually try to open the mouth wider. In addition to this treatment the tooth socket was packed with borated gauze, flushed daily with  $H_2O_2$  and kinosol 1-1000, and again packed, and the following mouth wash was ordered to be used at least four times a day:

R. Pot. Chlor. . . . . ʒii.

Dist. Ext. Hamm. . . . Fl. ʒiv.

This mixture was diluted one part in three of warm water.

The patient followed strictly all instructions, but notwithstanding this treatment the case did not progress satisfactorily, and so upon Saturday, June 11, I again administered  $N_2O$ , and Dr. A. L. Kenny opened down to the bone inside the mouth. The result of this opening up did not reveal any necrosed bone, but a vast amount of congested blood was freed. This wound and the tooth socket were now treated surgically, and the case seemed to be getting well.

This progress, however, was short-lived, for on Thursday, June 16, I again called Dr. Kenny's attention to the condition of affairs. The swelling had not disappeared any. In fact, it seemed much harder. The red spot on the face was more intense, the skin was more glazed, and on the whole it looked as though the pus would break through the overlying tissues at any time.

In view of this we decided to open the face from the outside, and so of two evils decided to accept the lesser; for the cicatrix from an incision is much more comely to the eye than that from an abscess.

Upon hearing this our patient wished to communicate with her parents, for they were growing somewhat anxious.

So that she might do this the following procedure was adopted: Instructions were given to cease using the salve, to discontinue massaging the face, and to keep the bowels active. The face was washed with ether, and collodion carefully applied. The collodion was applied in layers, allowing each layer to dry well before applying the next, and so on, until a good strong support was afforded the already very much overtaxed tissues over the area of pus. Instructions were given to be extremely careful not to knock the face in any way, to sleep upon the opposite side of the body, and not to expose to any possibilities of taking cold.

On Saturday, June 18, the face was opened freely and deeply, and a large amount of pus was freed, as well as much cheesy matter and organized inflammatory exudates. Later on, by means of

curettling, a good healthy bleeding was effected, and the cavity flushed well with kinosol 1-1000. It was now possible to get a steady flow of antiseptics from the outside, opening up through the tooth socket; although previous to this stage, any drainage from the tooth socket was never effected, owing to the accumulation of organized inflammatory exudates over the area of pus.

This wound was packed with iodoform gauze and dusted with chloretone, as supplied by Parke, Davis & Co., and further protected by cotton pads held in place by means of adhesive strips. The case was seen daily, flushed with kinosol 1-1000, and again dressed as above.

Gradually the visits were made less frequent, until the wound healed nicely and the scar was scarcely visible.

This case has not been written up under the impression that anything new has been given the profession, but just to point out say how far-reaching the field of the dental surgeon should be. It certainly is a little outside the beaten track of the dentist, and it has again convinced me that a dentist, nowadays, must be able to do more than extract teeth and replace them. He must be a scientific man, and must be well up in all details of oral surgery.—*The Commonwealth (Australia) Dental Review*.

## LITTLE PRACTICAL THINGS THAT COUNT.

By Frederick Crosby Brush, D. D. S.

Being frequently questioned regarding such details, is my apology for offering the following hints. No claim of originality is made, however.

Operating tables may be kept in a neat, presentable condition by using blotting paper covers. Such a cover will absorb all moisture from instruments and cotton pellets and prevent the spreading of drops of medicines. They may be readily changed when soiled and are cheap. The bracket table should be provided with a receptacle for waste cotton pellets and dressings instead of allowing them to be strewed around the chair and floor. A good receptacle can be made from a colored glass pomade jar into the top of which a star is cut. The points of the star will engage the cotton and clean the points of the pliers quickly. The jar may be scalded out and kept clean and free from odor.

The use of clean operating table covers and cotton receptacles

will eliminate a great deal of the disagreeable odor so common to dental offices.

A small piece of pure soap will be found useful in many ways during operations. The mouth mirror may be kept from clouding by coating the glass with dry soap and then wiping clean with a dry napkin. The edge of a sandpaper disk will not catch in the rubber dam, when polishing fillings, if it is first run in the soap. Disks and strips will cut faster and polish better if slightly soaped, on the grit side, before using. Disks and strips thus prepared, that are used for polishing gold fillings, will retain the particles of gold, and if saved and refined will more than pay for the trouble. Rubber dam will slip easily over the teeth if soaped around the holes. Ligature silk when soaped slips easily between the teeth. Use pure soap and sparingly, and it will not be disagreeable to the patient.

The excising of a natural crown of a tooth, when a dowel crown is to be used, may be done with a square reel cross-cut enamel fissure bur, gauge No. 1, cutting through the tooth at right angles to its long axis and following closely the gingival border of the gum. By this method little grinding of the root is required and laceration of the gums is avoided.

A Richmond or any banded dowel crown may be removed by slitting the band and drilling between the root and cap with a square drill until the pin is reached and passed a little to one side. The pin may then be cut with a cylindrical cross-cut bur. This will allow the ready removal of the cap and give direct access to the root for the removal of the balance of the pin.

When impressions are to be taken, note all conditions of the mouth carefully. If a thick, viscous saliva be present it may be overcome by rinsing the mouth thoroughly with milk of magnesia. The adhesion of the impression material to the teeth may be prevented by coating them slightly with vaselin or by rinsing the mouth with milk of magnesia just before the operation.

When working with wax in the laboratory, use a large common school slate for a bench cover; it will catch all pieces and drops of melted wax and when removed leaves the bench clean and ready for the next work. Wax spots on a bench may be very annoying when gold work is being done.

An excellent tool for trimming around plain teeth in vulcanite work may be made from a broken Gates-Glidden drill by sharpen-

ing it to a long thin point. With it the gums may be festooned and all particles of vulcanite be removed from between the teeth.

A small brush wheel with a single row of moderately stiff bristles is excellent for polishing around plain teeth in vulcanite work. If wet soap is applied to the bristles they will retain the wet pumice and cut like a knife. Soap rubbed on a felt buff wheel will retain the wet pumice, causing it to cut much faster and considerably lessening the time and labor of polishing an artificial denture.

Plaster models of orthodontia cases, etc., may be hardened and given a marble-like surface by boiling them in stearin. The models must be thoroughly dry before putting them into the boiling stearin. Use a double boiler, like a glue pot, for melting the stearin.

An investment compound that is second to none for crown and bridge work and all soldering purposes is composed of plaster and ashes. The ashes may be prepared for use by sifting common coal ashes until all grit is removed and a soft flakey powder left. The powdered ashes are added to the plaster at the time of mixing, the proportions being about two of plaster to one of ashes. This compound sets very hard and apparently does not contract or expand, nor does it burn out, warp, or crack under the heat of the blow-pipe. This compound has proven to be far superior to all mixtures containing marble dust, asbestos, sand, etc., and to many of the specially prepared ones that are on the market.

The light at the operating chair may be very much improved in the late afternoon or on dark, hazy days by using white linen curtains as reflectors. The principal one is an ordinary roller shade fastened at the top of the window casing. The curtain to be the full width of the window and of sufficient length to allow of its being drawn out over the operating chair, above the operator's head, and attached to some fixed point in the wall or screen. The spring in the curtain fixture, if left uncaught, will be sufficient to keep the curtain taut. This curtain with its glazed white surface, sloping downward and backward from the top of the window opening, will direct the rays of light onto the operating field instead of permitting them to be dispersed into the room. The system of curtains may be carried much further to good advantage. Broad white curtains may be attached to brackets swinging at right angles to the window frame and adjusted at an angle that will direct the light rays as desired. By this means the operating chair may be easily and quickly inclosed in a box having white reflecting sides. The dead

white of the curtains seems to soften the intensity of the light so that it is not unpleasant for the patient and causes no particular eye strain on the operator. The use of curtain reflectors has enabled me many times to continue operations without the aid of an artificial light; which is such a terrific strain on the eyes of both operator and patient.—*Dental Brief*.

## OBSCURE PAIN IN THE DENTAL ORGANS AND THE PROPER DIAGNOSIS THEREOF.

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By Dr. G. B. Carr.

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(Read Before the Sacramento County Dental Association, April 11, 1904.)

When our worthy secretary rang me up and asked me if I would entertain the society at its next meeting, I gladly complied, but when he asked me to write a paper, in conjunction with the entertaining, I at first balked, and am sorry I did not keep on balking, and possibly you will all be sorry also; but he modified the request to the extent of asking me to either write or read something that would start a discussion. I came to the conclusion that this would be easy, for I know of no body of men that delight in discussion, pro and con, more than dentists, unless it is some of the many "labor organizations." But, joking aside, I think there is nothing so beneficial to all concerned as the discussions that arise from a paper or subject, no matter how simple. The most enlightened can learn something, those not so much so learn more.

The subject I have taken to-night is probably less thoroughly understood than many I might have selected and the paper will be no long essay on nerves and sympathetic relations thereof, but a few of the many puzzling conditions that sometimes confront us, with the addition of two peculiar cases that I have come in contact with. Some, if not all, of you have probably had more or less of the same kind, probably more startling; if so, we want to hear from you later. Many patients come to our offices with tales of woe, of sleepless nights, from this tooth or that one, and as a matter of course have not come except as a last resort. You at first look over the mouth for the simpler causes of such a condition; possibly there are visible reasons for the trouble, which is immediately located. You proceed to remove the cause, either by extraction or by proper treatment. Such cases, to use the slang of the

day, "are a chinch"; but maybe the conditions are different; possibly you cannot find any local cause; all tests and methods fail and the pain still remains; teeth may be all sound, no visible break in enamel, none respond to concussion or thermal changes, but the pain is still there. The simplest lesson to be learned in any one of these cases is one that is hardly recognized at its true value by the dental surgeon or by the general practitioner. It is this: First, pain in a tooth by no means indicates that that tooth is the seat of the source of the trouble; it may be in another tooth or in other tissues, near or remote. Second, dental disorders may induce pathological conditions in other parts of the body, or in the nervous structures themselves, without the existence of any subjective intimations of pain in the teeth on the part of the patient. In other words, one may have tooth ache in the brain, the ear, or eye, or one may have headache, earache, etc., in the teeth. Volumes have been written concerning the theories of counter-irritation and reflex action. I shall not elaborate for the simple reason I do not consider myself competent, but shall only note that in attempting to locate the source of trouble in such cases, we must remember that either one of two conditions may present. Either the brain mechanism may be solely at fault, resulting in an error of judgment on the part of the patient, because of the conveying of a message to the wrong receiving center (as it were), or the reflected irritation, returning by a false route, does in fact cause a reflected pain in the tissue, so that they become the certain source of inflammation and pain. To find out which is the case requires the most perfect and careful diagnosis. Among the most common and frequent local causes that give rise to pain in the teeth are superficial caries, deep-seated caries, exposed nerve, inflammation of periosteum and pulp stones. It is very rarely that an apparently sound tooth will become the seat of severe and continuous pain, which for the time resists the action of the remedies employed, and when we do find one that is stubborn, and does resist, we must look for some cause more remote. By reflex odontalgia, we mean pain in the teeth that are not in reality the seat of original condition; the primary cause may be in any other organ of the body, near or remote from the teeth. A tooth apparently sound, not showing sensitiveness to percussion, or to heat and cold, may be either the incitive or the apparent seat of pain. in just the same way irritation in other structures, either nervous or organic, and apparently in any part of the



body, may be the cause of a reflected sensation of pain in the teeth. I feel sure that many more cases of this kind would be accounted for if both physicians and dentists observed more closely. I have come across a number of cases of defective vision, or continuous headaches that were entirely cured by having the mouth and teeth put in a healthy condition, and have had tooth ache entirely disappear by having the patient properly fitted with glasses. In the pregnant female, especially during the first four months, we see one of the most peculiar and striking cases of reflex action or sympathetic relations of the nerves. They will call on you with toothache. You can find no local cause; they will locate it first in one tooth and at the next visit in another; you use all the remedies and treatment at your command, yet they seem to have no effect. After three or four months it subsides of its own accord, usually, but in some cases continues during the whole period of gestation, showing that there is a very close relationship between these two remote structures, but beyond the fact that such a relationship does exist, very little is known. Probably future research into the more intricate arrangement of the nervous system and a more thorough understanding of the laws of reflex action will reveal a structural basis for the manifestation of phenomena which at the present time are alluded to as "sympathetic." There seems to be an idea that a dentist should not make any inquiries into the cases of suspected pregnancy or female troubles. I differ very materially. If you cannot find any local cause for trouble and have exhausted all ways and means to locate the pain it is your duty to ask the question whether there is any female trouble or whether it is a case of pregnancy. You have as much right to know as a physician, and the questions can be put in just as delicate a manner by the dentist as by the physician.

I will now relate one of the puzzling cases of toothache I had in Napa county a few years ago. Patient a woman, aged about 22 years, married about one year, had suffered fearfully for three or four weeks; had had two or three molars extracted, which had been filled, but had gotten no relief. Seemed to be in perfect health, and none of the ordinary tests showed or located the trouble. Had been doctoring for neuralgia for some time, but with no success. At her request I drilled out one large amalgam filling, but found nothing wrong. Put her on "ak" and codine 20 grains a day for three days and got no results, so discontinued. Questioned her in

regard to being in the family way or whether she had any female trouble. Answered no to both questions. Called in my physician and he had her go to his office, and there made an examination and found her about three months in the family way. She had begged me to extract first this tooth and then that one, which I, of course, refused to do. She suffered the most excruciating pain up to the sixth month, and after confinement was entirely well. There was one peculiar circumstance connected with that case, the doctor told me. She had not missed a monthly period up to the time she had called on me, consequently was sure she was not pregnant.

The other case was also one in some respects peculiar. Patient man about 30 years old. When he first called on me he had been suffering untold agony for a period of eight months, had been to two or three dentists, and had lower teeth extracted, from time to time, until he had only his left lower six-year molar remaining. He was simply on the verge of collapse, was so worn out from loss of sleep and pain. His brother, who called with him, was a very well read and intelligent man. He told me that after he would have a tooth extracted the pain would lessen for a week or two, but would return with renewed vigor in a short time. Seemingly the only relief he could get was by continually rubbing his cheek and jaw with the palm of his open hand, which he had done until the cheek was hard and callous, and of a dark blue color. All the teeth which had been extracted had been sound, and showed no indication of trouble. Asked me if the extraction of all the lower teeth would give him relief. I replied that I did not think so, and refused to extract. I diagnosed it as a severe case of tic douloureux or spasms of the dental nerve, and advised him to go to San Francisco and have an operation performed, by dividing the nerve. The brother decided to do so, and I think the operation was performed in the German hospital with perfect success. The only thing regretted was the unnecessary loss of so many good teeth, which gave him no relief.

I think a good moral can be learned from these cases, one which I have endeavored to follow, namely, never extract a tooth without you have good and sufficient definite reasons for so doing. I sincerely hope I have not bored you, as I find this paper is somewhat longer than I intended it to be, and exceedingly dry, but a little later we will have something that is a little more damp, and I hope you will all revive.—*Pacific Dental Gazette*.

**WHOLESOME INFLUENCE OF PROFESSIONAL SOCIETIES.**

Difference of opinion must arise in connection with our science, and the practical application of the knowledge and skill acquired by the study of experienced men must also vary almost indefinitely. And since neither knowledge nor skill is the monopoly of any one man, it follows that the common center for focusing, collecting, sifting, and diffusing the adequate wisdom of a part of the whole body becomes an indispensable factor, and the uppermost factor of our profession—and he who fails to recognize his obligation in this direction must certainly fall short of his duty to his clients, his profession and himself. For the cultivation of the social principle, local societies afford ample opportunities, and by this means are effective promoters of the common weal. Social gatherings of this sort are most potent antidotes to those small human weaknesses which manifest themselves in petty jealousy and local rivalry, by creating a firmer bond of union between the members, and by fostering more cordial sympathy between them. The greater the advancement of the entire body of which we are members, the more earnest and determined the resistance to all that would degrade and defile us.—*Dr. R. Edwards, Dental Record.*



## **SOCIETY ANNOUNCEMENTS**

### **AND REPORTS OF MEETINGS**

#### **SOUTHEASTERN DENTAL SOCIETY.**

The second annual meeting of the Southeastern Iowa Dental Society will be held in Burlington, Iowa, on January 9 and 10, 1905.

WM. M. TERRY, Secretary,

Washington, Iowa.

#### **WISCONSIN STATE DENTAL SOCIETY.**

The Wisconsin State Dental Society meeting will be held at Oshkosh July 20-23. Dr. H. T. Sackett of Fond du Lac is president of the society, and he, with Dr. Chilson of Appleton and Dr. M. L. Christensen of Oshkosh are a committee on arrangements.

#### **NATIONAL INSTITUTE OF DENTAL PEDAGOGICS.**

The Institute of Dental Pedagogics will be held at the Gault House, Louisville, Ky., Dec. 29-30-31. This will be the first meeting to be held in the South. Dr. H. B. Tileston of Louisville is president and C. H. Yager is chairman of committee on arrangements.

#### **LA SALLE DENTAL SOCIETY.**

President, C. R. Taylor, Streator; Vice-president, R. W. Morseman, Peru; Treasurer, T. J. Barrett, Ottawa; Librarian, R. D. Moran, Kinsman.

The La Salle County Dental Society, a component part of the Illinois State Society under its reorganization, was organized at Streator, Ill., October 24, 1904. The above officers were elected for the ensuing year. The next meeting will be held February 14, 1905, at La Salle, Ill.

Yours truly,

L. E. JORDAN, Secretary.

#### **CENTRAL MISSOURI DISTRICT DENTAL ASSOCIATION.**

The Central Missouri District Dental Association was organized at Sedalia, Mo., Nov. 22, with a membership of nearly fifty from

Pettis and surrounding counties. The following officers were elected: Dr. F. M. Fulkerson, Sedalia, president; Dr. W. M. Carter, Sedalia, vice-president; Dr. Magrew, Fayette, corresponding secretary; M. L. Myers, Sedalia, secretary and treasurer.

### **INDIANA STATE BOARD.**

The next meeting of the Indiana State Board of Dental Examiners will be held in the State House in Indianapolis Jan. 10th, 1905. All applications should be in the hands of the secretary by Jan. 5th. Every applicant will be expected to come prepared to do practical work and must bring his own equipment.

F. R. HENSHAW, Secretary and Treasurer.

### **ALLUMNI ASSOCIATION OF N. W. U.**

Alumni Association, Northwestern University Dental School, will hold its annual clinic, Tuesday, January 17, 1905, at University building, corner Lake and Dearborn streets, Chicago. All members of the profession are cordially invited to attend. Exhibitors may procure space by addressing Dr. C. R. E. Koch, Lake and Dearborn streets, Chicago.

G. B. MACFARLANE, Secretary.

FRED. W. GETHRO, President.

### **ODONTOLOGICAL SOCIETY OF ROCKFORD.**

The Odontological Society of Rockford at its annual banquet at the Nelson recently elected officers for the ensuing year. The banquet was served in the ordinary of the hotel at 6 o'clock, and to it the dentists and their wives to the number of thirty-five sat down. The banquet over, the election was held and resulted in the selection of the following to direct the affairs of the society the ensuing year: President, C. B. Helm; vice-president, A. M. Harrison; secretary-treasurer, F. N. Eastman; member of board of censors, A. B. Culhane.

### **WISCONSIN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates desiring license to practice dentistry in Wisconsin will be held in Milwaukee, January 30, 1905.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry

consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry for five years.

For further particulars apply to

J. J. WRIGHT, Secretary,  
1218 Wells building, Milwaukee, Wis.

### **DENTAL SOCIETY TO HAVE A HOME.**

The St. Louis Dental Society met Dec. 6 at the Lindell Hotel and elected Dr. C. D. Lukens president of the society. Dr. Harry Hill was chosen first vice-president; Dr. J. F. Austin, second vice-president; Dr. B. E. Lischer, recording secretary; Dr. Bland Pippin, corresponding secretary; Dr. W. A. Roddy, treasurer, and Dr. C. C. Cowdery, librarian.

Initial steps were taken to erect a building for a dental museum, a library and a home for the society. Dr. M. C. Marshall presented a resolution which provides that a percentage of the dues each year be set aside as a building fund. At the next meeting a vote will be taken on the resolution.

### **OHIO STATE DENTAL SOCIETY.**

The Ohio State Dental Society, at its thirty-ninth annual session at Columbus, elected the following officers for the coming year:

President, S. D. Ruggles of Portsmouth; first vice-president, H. L. Ambler of Cleveland; second vice-president, H. C. Brown of Columbus; secretary, F. R. Chapman of Columbus; treasurer, C. I. Keely of Toledo; board of directors, C. R. Butler of Cleveland, A. B. McConkey of Urbana, C. S. Converse of Springfield and H. T. Smith of Cincinnati.

Only four directors are usually elected, but for the reason that Dr. Brown was elected second vice-president, Dr. Smith was selected for the vacancy.

### **E. K. WEDELSTAEDT DENTAL CLUB OF IOWA.**

The third annual meeting of the E. K. Wedelstaedt Dental Club of Iowa will be held in Cedar Rapids December 16 and 17. Clinics will be held Friday forenoon and afternoon and Saturday forenoon in the Woman's Club rooms. Friday evening Dr. E. K. Wedelstaedt of St. Paul will lecture in the club room of the Delevan on "Principles of Instrumentation," following which there will be a business meeting. At 2 o'clock Saturday afternoon Dr. Wedel-

staedt will lecture at the same place on "Pyorrhea," followed by a general discussion of clinics. Dentists from all over the state will be present.

### MID-WINTER CLINIC.

The Lincoln (Neb.) Odontographic Society has decided to make a request of Congressman Burkett. This is that he interview the secretary of war with a view to elevating the dental corps of the army and navy to a grade equal to that of the medical corps—including privileges, rank, promotions, retirements and all. At present the dentists, while attached to the medical staff, bear no rank.

It has also been decided by the local society to hold a dental clinic in Lincoln Jan. 17 and 18. The need, interest and advisability of such educational diversion has been a topic of discussion for some time. A committee has been appointed to make the arrangements, consisting of Dr. M. E. Vance, chairman; Dr. L. P. Davis and Dr. E. G. Antrim. The superintendents of the clinic will be Dr. W. R. Clark and Dr. M. O. Frazier.

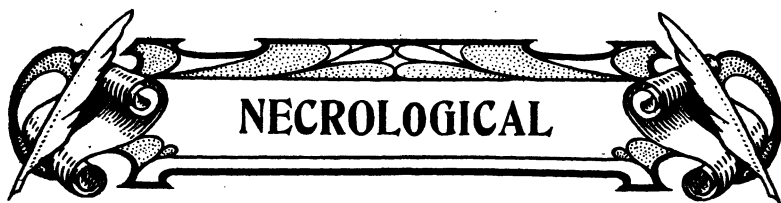
### UNION MEETINGS.

A union meeting will be held in Basel, Switzerland, December 17, 18 and 19, 1904, of the European Advisory Boards Association to the National Association of Dental Faculties, the Southwestern Section of the Centralverein in Amerika graduierter Doctoren der Zahnheilkunde (E. V.), the Swiss Association of American Dentists and the "Zahnärztliche Gesellschaft in Basel," to which members of the American Dental Society of Europe, the International Dental Federation, the Swiss Odontological Society, Paris Dental Club and other societies will contribute. Programmes may be secured by November 15 from the president, Dr. L. C. Bryan, or the secretary, Dr. H. B. Respinge, Basel, Switzerland, to whom notices of intended participation in the meetings should be addressed. A special feature will be made of bench clinics and exhibits of all articles and novelties of interest to dentists. These will be gladly received and given ample accommodations in the public buildings of Basel, which have been secured for the meeting. All dentists in affiliation with recognized dental societies are cordially invited to attend. Communications regarding hotel accommodations should be addressed to Dr. Ferdinand P. H. Facklam; clinics and demonstrations, to Dr. V. de Trey; exhibits to Dr. Ferdinand Kloetzer; papers to Dr. F. T. Schaer; invitations to Dr. E. Grossheinz—all of Basel.

L. C. BRYAN, President.

H. B. RESPINGER, Secretary.

Aescherplatz. Basel, Switzerland, October 6, 1904.

A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

## NECROLOGICAL

### **DR. M. D. THURSTON.**

As the result of a double operation for appendicitis and gall stones Dr. M. D. Thurston, one of the most prominent dentists in the state of Washington, died Nov. 17 at Spokane. Dr. Thurston had been a sufferer from both maladies and while the operations were not considered absolutely necessary at this time it was thought advisable by his physicians.

Dr. M. D. Thurston was a prominent member of the Washington Dental Society and one of the members on the state board. He was one of the pioneers of Spokane, going to that city in 1890.

Dr. M. D. Thurston was born in Bradford, Vermont, Oct. 10, 1857. He grew to manhood in the city of his nativity, receiving a public school and academic education, and in 1877 entered upon the study of dental surgery under Dr. E. P. Cumings. After spending two years under the tutelage of that dentist he removed to Columbus, Nebraska, and engaged in the practice of his profession, remaining there continuously until 1890. Since that date he has been practicing in Spokane. He was a member of the Washington State Dental Society, the state board of dental examiners and of B. P. O. Elks No. 228.

### **DR. FREDERICK NILES SEABURY.**

Dr. Frederick Niles Seabury, a retired dentist of prominence in Providence, is dead. He was born in Tiverton August 20, 1822. His family went to Providence when he was 12 years of age, and he lived there during all the subsequent years of his life. He took up the profession of dentistry and graduated from the Baltimore Dental College in 1848. He retired from active business 13 years ago. In the Unitarian denomination he soon took the lead in Providence, and had been a deacon and president of the Westminster Congregational church since 1852. The church celebrated the 50th anniversary of his services as an officer in April, 1902. He



was also vice-president of the Rhode Island Bible Society. He was one of the charter members of the Squantum Club, and later was placed on the list of honorary members. He was also a member of the Rhode Island Horticultural Society, Rhode Island Historical Society, New York Odontological and New York State Dental societies, and American Dental Association. He held the office of president of the American Academy of Dental Science of Boston. On Sept. 28, 1852, Dr. Seabury married Catherine, the eldest daughter of Captain Nathaniel Wheaton. He is survived by three sons and one daughter, and has ten grandchildren.

#### **DR. CHARLES P. SAWYER.**

Dr. Charles Parker Sawyer died Nov. 6 at his home in Augusta, Me., where he had been cared for during the last few weeks of his illness. Death came as a welcome relief to suffering which has been unremittent for nearly ten years past, and at times agonizing in its severity. The disease was rheumatism in its most malignant form, and though treated by the ablest medical skill of the country, it ultimately conquered. For the past three months the doctor has been unable to leave his room. The deceased was a member of the firm of C. P. & F. O. Sawyer dentists, and had practiced his profession, except when disabled by the progress of his suffering, since 1888, when he moved from Dexter. During this period he held a high place in the regard of his townsmen, and has borne an enviable reputation as a citizen, a neighbor and a man. He was a member of Somerset Lodge, F. & A. M., Somerset Chapter, R. A. M., and DeMolay Commandery No. 10, K. T. He also belonged to the Independent Order of Odd Fellows, being a member of the local lodge in Dexter, and of Canton Somerset in Skowhegan.

#### **DR. W. A. DROWNE.**

Dr. Wightman A. Drowne, aged 51, formerly a dentist in Chillisnothe, Mo., died at El Paso, Tex., Nov. 28. He was married in early life to Julia A. Street of St. Louis, who survives him. Dr. Drowne was a practicing dentist in Kansas City, and after he left there in 1885 he went into the theatrical business.

#### **DR. HENRY T. TOWER.**

Dr. Henry T. Tower, one of the earliest dentists in western New York, died Nov. 8, in Rochester at the age of 72 years. The Tower

family were among the French Huguenots who were driven out of France by the edict of Nantes, and settled in Scotland, whence the grandfather of the deceased man, Henry Tower, came to Wayne county in 1780 with Charles Williamson, agent of the Pultney estate. He conveyed Louis Philippe, the exiled king of France, from Newton, now Elmira, to Harrisburg on a flatboat. Dr. Tower studied dentistry with Dr. Elbert Ware Sylvester, the pioneer dentist west of the Hudson river, and in 1855 opened an office in Lyons, N. Y. He went to Chicago in 1865, where he practiced five years, investing his money in Chicago real estate, which later made him independently wealthy. He removed to Troy, N. Y., in 1870 and practiced dentistry until 1890, when he retired. He was visiting a stepdaughter in Rochester when he died from a sudden attack of hiccoughs.

#### DR. D. L. STINE.

Dr. Davis Lesley Stine, aged 36 years, died at Indianapolis Dec. 7. He was operated on for appendicitis Nov. 19. Dr. Stine was born at Winchester, Ind., where he lived until he entered the Indiana Dental College in Indianapolis in 1894. He had been in the practice of dentistry there since that time. He was a member of the Columbia Club, the German House, Mystic Tie Masonic Lodge, the Marion Club and the Highland Golf Club. Dr. Stine was a prominent member of the profession in the state, was a member of the State Dental Association, the local dental society, Delta Sigma Delta Dental Fraternity, and for the last three years had been secretary of the State Board of Dental Examiners.

In December, 1901, he married Miss Stella Keyes of Stockton, Cal., who, with a child of two years, survives him.

#### DR. JOHN G. BROUGHTON.

Dr. John G. Broughton, 35 years old, a dentist in New York and a resident of Bloomfield, N. J., died at his home Nov. 20, from a complication of diseases, after an illness of two years. Dr. Broughton was a graduate of the Bloomfield High School and later entered Williams College, graduating from there with high honors. He was also a graduate of the College of Physicians and Surgeons and College of Dentistry in New York. Dr. Broughton was a member of the old First Presbyterian Church. He was unmarried.

**DR. EDWIN H. BROCK.**

Dr. Edwin H. Brock, aged 56, a prominent Lynn (Mass.) dentist, died at his home in that city Dec. 4, as a result of a paralytic shock received a week previously. He had been conscious but a few moments since that time. He was a native of Stafford, N. H., and went to Lynn in 1868. He engaged in the grocery business until 1879, when he entered the Boston Dental College and graduated in 1882.

**DR. CHARLES H. MOSELEY.**

Dr. Charles H. Moseley, for nearly fifty years a dentist at Williamsburg, died Nov. 7 at his home. He was born in Poughkeepsie 76 years ago. He was one of the pioneer California gold-seekers. It was said that he perfected and was the first to use nitrous-oxide gas in dentistry, and he invented other instruments that have become indispensable in the profession. He is survived by two sons



# MISCELLANEOUS

## **Sterilized Cotton Root-Filling.**

Dip a pellet of cotton in iodine and leave to burn. It does not fall to pieces and can be introduced without difficulty.—*Dr. Hotz, Dental Cosmos.*

## **To Expedite the treatment of Putrescent Root-Canals.**

As a source of gratifying results, use a dressing composed of equal parts of alcohol, formalin, and beechwood creosote.—*Dr. Charles E. Slagle, Brief.*

## **Corns.**

Every evening on retiring bind a slice of lemon over the corn. A very few applications does the work.—*Alk. Clinic.*

## **Chloral Camphor.**

Chloral camphor dropped into a carious tooth and covered with a pledget of cotton often instantly relieves pain.—*Hints.*

## **Springy Wire for Regulating Appliances.**

The gilded piano wire, size A, English gauge, is the most satisfactory wire for regulating springs, when not vulcanized in a plate, as it does not corrode, and in many mouths, does not even tarnish.—*E. Bradner White, Dental Review.*

## **To Prevent Tarnish on Silver.**

Brush alcohol in which a little collodion has dissolved over silver ware to keep it from tarnishing. The thin invisible coating the solution leaves can readily be removed by dipping the article in hot water.—*Popular Mechanics.*

## **Removing Rust.**

To remove rust from metal, cover the metal with sweet oil, rubbing it in well, let stand 48 hours. With a piece of cotton wool apply oil freely, then rub well with powdered unslacked lime.—*Popular Mechanics.*

**Washing Soda (Sodium Carbonate) Injurious to Aluminum Instruments.**

The ordinary washing-soda solution in which instruments are boiled will entirely ruin aluminum instruments, and hence should not be used for sterilizing them.—*Inter. Jour. of Surg.*

**Hemicranin.**

I have found hemicranin to be singularly free from the depressing effects so common to drugs of a like nature, and when administered for neuralgic affections commonly met with in dental practice, I have found nothing that would take its place.—*Dr. E. M. Steele, Items.*

**Use For Worm Mandrels.**

When the screw thread is worn so it will not hold, mount the stone with sealing wax, warmed and pressed home and held until cool. Cotton warmed on the screw thread will also cause it to hold temporarily.—*Review.*

**Hard and Soft Jaws.**

This hard condition of palated surface is found in 98 per cent of jaws, while in 2 per cent there is a soft condition, usually accompanied by a crevice. In these 2 per cent of cases no change of model is needed, but fit the plate snugly to the whole surface of the palate.—*Dental Hints.*

**To Soften Moldine.**

Take a freshly mixed piece of plaster of paris and place the moldine upon it, leaving it over night. The moldine will absorb sufficient moisture from the plaster. To get rid of extra moisture in moldine lay it upon a dry pine or poplar board.—*Dr. Homer Almon, Review.*

**Drying Out Root Canals.**

The advantage a chip blower heated over an alcohol lamp has over an electric hot air syringe, is this: The air taken in by the chip blower from an alcohol flame is converted into formaldehyde gas and is the best disinfectant on earth.—*Dr. Homer Almon, Review.*

**Cleanliness.**

Cleanliness, above all things, is necessary to a successful treatment of all diseased conditions of tissue. Not ordinary cleanliness, in all its general acceptation, but surgical cleanliness, and there is a vast difference between them; to be surgically clean is to be germ free.—*Dr. W. A. Barber, Items.*

**To Preserve Rubber.**

Ten to twelve parts of water and one-part of ammonia will preserve soft rubber any length of time. Dip the rubber pipes, etc., in a glass jar filled with this solution. Use for your ammonia bottle a rubber stopper; it is better than a glass stopper.—*Toledo Medical and Surgical Reporter*.

**Pressure Anaesthesia in Case of an Aching Tooth.**

I have had occasion to treat an aching tooth by the pressure method and not having time to do more have packed gutta-percha hard into the exposed anaesthetized pulp and found it lifeless in twenty-four or forty-eight hours, with no pain in the interval. On several occasions this has worked out all right as I somehow expected it would.—*Dr. R. B. Tuller, Dental Summary*.

**Obtunding Sensitive Dentin.**

In cases of extreme and abnormal sensitiveness apply the rubber dam and place a bit of solid silver nitrate in the cavity and allow a drop of water to fall upon it. Dry the cavity and the excavation may be proceeded with almost painlessly. For deeper work a second application may be necessary. Wash the cavity well before inserting the filling.—*Items of Interest*.

**Repairing Amalgam Fillings.**

When it is desired to add to an old amalgam filling, clean the surface with a cross-cut bur, wipe the cleaned part of the amalgam with a piece of cotton wool moistened with concentrated phosphoric acid and pack on the new amalgam, which will adhere with no trouble; the joint has about eighty per cent of the strength of the amalgam used.—*Dr. Stanley Read, British Dental Journal*.

**Pain Following Extraction of Teeth.**

Fill the alveolus with a cotton tampon saturated in a solution composed of equal parts of chloral hydrate, glacial phosphoric acid, and glycerin and the pain will disappear. The chloral hydrate and the glycerin attenuate considerably the caustic effect of the glacial phosphoric acid. This dressing, besides the pain-relieving properties it possesses, is a powerful antiseptic.—*Rev. de Dent. Appliquee-Cosmos*.

**Hydrogen Dioxid and Lime Water.**

When about to use hydrogen dioxid, to prevent its acid reaction, mix it with an equal volume of lime water. It will be equally effective as a disinfectant, but not escharotic in action.—*Register*.

**Tri-Chloroacetic Acid.**

This is an excellent treatment for pyorrhea as it arrests the formation of pus quickly. It acts like a charm in putrescent pulp canals. Carefully applied to spongy gums, it gives better results than anything I have used. It is also excellent in pericementitis arising from calcic deposits. Because of its astringent and escharotic action it destroys abnormal surface tissue and resuscitates it after a single application.—*Dental Brief*.

**Journal of Oral Surgery and Dental Medicine.**

We regret to learn that Dr. A. W. Harlan of New York City has temporarily abandoned the project of publishing the "Journal of Oral Surgery and Dental Medicine." We had anticipated much pleasure in once more seeing the doctor in the editorial chair. We have often enjoyed the crisp editorials from his pen, together with the many original articles he was always able to obtain from the best minds of foreign, as well as from our own country. Dr. Harlan is a good editor, a good organizer, and we hope the time may soon come when he can safely launch his pet project.

**Filling An Impression for a Crown.**

In making a model for an anterior crown, difficulty is sometimes experienced in flowing the soft plaster around the pin and cap in the impression, without forcing it from the correct position. By holding a small amount of freshly prepared soft plaster on the spatula near the pin it can be conveniently forced to position over the cap and around the pin with the aid of a chip blower, without danger of dislodging it from the correct relation, as no jarring of the impression will be necessary. The impression can then be filled in the usual way. This method will be found advantageous in investing delicate matrices for inlay work or any work requiring care in making the investment.—*Review*.

**Making a Matrix With Gum Camphor.**

Dr. Charles Channing Allen, Kansas City, gave a clinic showing a method original with him of making a matrix for porcelain inlays. The vital part of the method consists in filling the matrix while

making with gum camphor and actually swaging it, as it were, in the mouth, with this material, instead of burnishing it to place, as has been the custom, with chamois skin, cotton, spunk, paper, or other material of a similar nature. After the cavity is prepared a piece of gold or platinum foil of proper size for the matrix is placed in position, then slightly burnished to place with any material handy, such as spunk or chamois skin, but no particular attention being paid to adaptation, except in the general way.

When the cavity is outlined in a general way, Dr. Allen proceeds to fill it with gum camphor, taking a small lump of the proper size and burnishing it into the cavity with pressure, using a proper bur-nisher, usually a flat instrument.

The gum camphor is stiff enough to require a sufficient pressure in putting it to place to swage the gold or platinum foil to all parts of the cavity walls and is firm enough to admit of all handling necessary and still absolutely retain its shape.

Dr. Allen burnished the camphor down carefully and works out this camphor filling with as much detail as though he intended it for a permanent filling, thereby securing a perfect edge around his matrix. The translucency of the gum camphor aids materially in attaining this result.

But the best part of this whole proceeding is the ease and rapidity with which the camphor can be removed. After Dr. Allen has made his matrix as outlined, he invests it in asbestos fibre in the ordinary way with alcohol and sets it afire, by the time the alcohol has burned up, the camphor has entirely disappeared, leaving an absolutely clean matrix with nothing whatever to discolor or contaminate the porcelain. If it is not desired to invest the matrix, simply ignite the camphor with a match-flame and it burns up in an instant with the above results. It is usually, however, best to add a drop of alcohol before burning.—*Brief.*

#### **Simplified Construction of Regulating Plates.**

Make the plate a little thicker than usual, and after vulcanizing attach the springs, wires, levers, etc., by drilling two holes from one-fourth to one-half inch apart, and with a bur make a groove on the palatal side between the holes of sufficient depth to receive the wire so that the surface will be level when the wire is in place. Thread the end of the wire through one hole and back through the other, and with a pin-hole punch compress the wire until



the angles firmly grip the plate; thus rendering it a fixture. By drilling new holes and inserting new springs, etc., one plate will be sufficient to meet all exigencies until the deformity is corrected, when the retaining wire may be adapted in the same way.—*F. Brandon White, Dental Review.*

### **Municipal.**

The latest in municipal activity in Europe is the city dentist. United States Consul Liefeld, of Freiburg, Germany, reports that dental statistics gathered in many European cities have revealed such an alarming condition that Germany has decided to adopt combative measures. In all large towns dental clinics have been founded, consisting as a rule of rooms in one of the central schools.

Fully qualified dentists are appointed, but in Stuttgart the work is done voluntarily by the local dentists. Of many thousands of boys and girls examined, from the age of 8 to 13, only 2 per cent. had perfectly healthy teeth. During the year 1903 in Darmstadt 1376 children were examined and 1561 teeth were filled, while 1871 were extracted. In Strassburg 2666 children were examined, 699 teeth were filled and 2912 were extracted.

Forty per cent. of all teeth examined were bad. The method of work is very simple. The teacher brings his class to the dentist, who examines each mouth quickly and marks on the card which each child has brought whether treatment is necessary. If so the child must come again on a Saturday.

Russia is also joining in the movement, and has already fitted up nine such institutions in St. Petersburg alone.

The members decided to join the State Dental Society, as a body in the near future.

The next regular session will be held at Dubuque, Ia., in January of the coming year.

## DENTAL PATENTS

772,324. Root-Extracting Forceps. Nelson D. Asdell, San Francisco, Cal. Filed Feb. 19, 1904. Serial No. 194,425. (No model.) Fig. 5.

*Claim.*—1. A root-extracting forceps having a tapering and externally-serrated beak made in two longitudinal sections having interlocking surfaces on their adjacent faces to resist twisting of the sections under a torsional strain substantially as described.

772,304. Dental Articulator. Frank L. Williams, Florence, Colo. Filed July 25, 1904. Serial No. 218,070. (No model.) Fig. 2.

*Claim.*—1. In a dental articulator, the combination of a pedestal having a concave seat in its upper end, and also having an exterior thread, a nut mounted on said pedestal and having an interiorly-rounded upper portion, a ball interposed between the seat of the pedestal and the rounded portion of the nut, an upright fixed with respect to and movable with the ball, and lower and upper plate holders connected and movable with the upright.

772,104. Artificial Tooth. George C. Kusel, Devon, Pa. Filed Dec. 12, 1903. Serial No. 184,957. (No model.) Fig. 3.

*Claim.*—1. An article of manufacture consisting of an artificial-tooth structure comprising a thin metallic plate having a facing of enamel or other similar material fused to one side thereof and adapted to be secured to a supporting dental structure.

771,961. Support for Dental Engines and Spittoons. William B. Alford and Edwin P. Alford, Sumter, S. C. Filed Feb. 7, 1903. Serial No. 142,382. (No model.) Fig. 1.

*Claim.*—The combination with a tubular rotatable standard bent to form upper and lower lateral extensions between its ends, of a spittoon connected at the bottom to the lower extension forming a waste-pipe from the spittoon, and having a tubular rim fixed to the upper extension forming a supply-pipe to the spittoon, a water-motor supported on the top of the standard and discharging its waste water therein, and a supply-pipe to the motor.

12,277. Dental Preparation for Capping Pulp. Abram L. Bower, Boyertown, Pa. Filed April 9, 1904. Serial No. 202,437. Original No. 731,849, dated June 23, 1903.

*Claim.*—1. A composition consisting of a combination of thymol with a metallic compound.

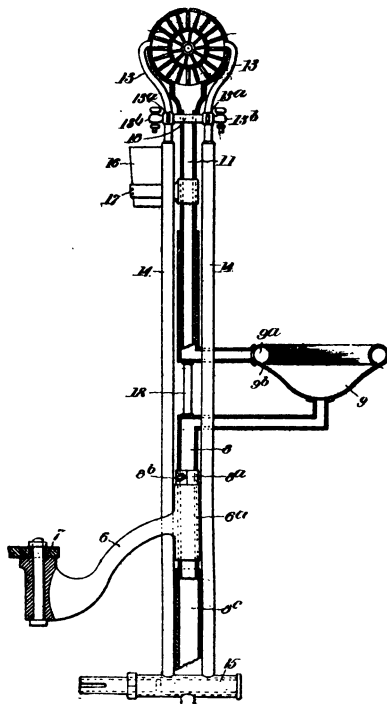


FIG. 1.

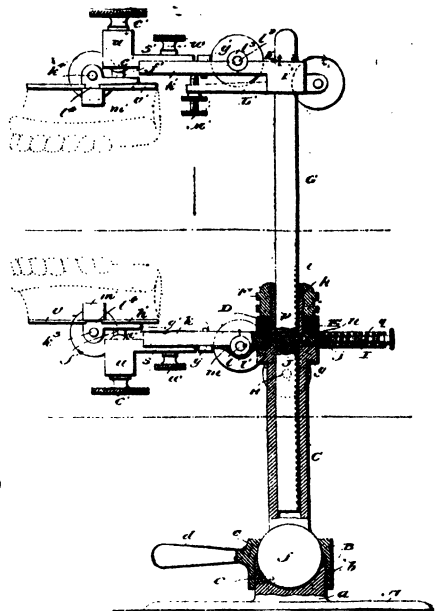


FIG. 2.



FIG. 3.

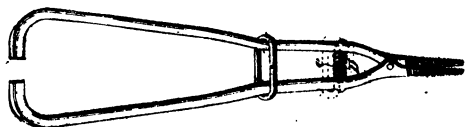


FIG. 5.

## PERSONAL AND GENERAL

**Thieves**—The office of Dr. Juskin Boyce at Providence, R. I., was robbed Nov. 30.

**Married.**—Dr. T. H. Culhane of Peoria, Ill., to Miss Van Eastman of Chicago, Ill., Nov. 23, at Ottawa, Ill.

**Robber.**—F. B. Spooner of Brooklyn, N. Y., suffered the loss of \$250 worth of gold and instruments through burglars, Nov. 21.

**Convicted of Bribery.**—Dr. J. B. Vernon, dentist at Hannibal, Mo., has been convicted of bribery in the purchase of postoffice sites, and sentenced to a term of three years.

**Explosion of Gasoline.**—The explosion of a can of gasoline in a dentist's office started a dangerous fire in Perrysburg, O. Three business houses were burned and two offices. Loss, \$20,000.

**Scorched.**—Dr. Mullen, a dentist at Dubuque, Iowa., was painfully burned in his office Dec. 1 when a sofa caught fire from a stove. To save his office the dentist threw the sofa out the window and in doing so was burned about the hands and arms.

**Skull Fractured.**—While riding horseback on the Central Park east bridle path, Nov. 27, Richard Wolff, a dentist of New York City, was thrown from his horse. He sustained a fractured skull. He was taken to the Presbyterian Hospital in an ambulance.

**Jaw Broken.**—Mr. William A. Miller went to a dentist's office to have a troublesome tooth removed, and, while under the influence of an anesthetic, her jaw was broken in the effort to remove it. Her recovery is doubtful, the woman is suffering from a great shock.

**Dentist Shot.**—Harry B. Green, a young dentist, was shot twice and perhaps fatally wounded in his office, in Louisville, Ky., by Dr. Walker B. Gossett, a prominent physician and assistant instructor in the Louisville Medical College. Dr. Green was taken to the Gray Street Infirmary, where it was announced that he had a chance to recover.

**Cocaine Causes Death.**—Mrs. Jane Wilman died Dec. 2 at her home near Eckmansville, Adams county, from the effects of an overdose of cocaine. Mrs. Wilman had some teeth extracted, the physician applying the drug freely. Soon after it was administered she was taken sick and died in a few hours. She leaves three young children.

**Dies From Overdose of Chloral.**—Dr. Austin A. Weavers, a dentist at Staunton, Va., died Nov. 30 from an overdose of chloral.

Dr. Weaver had been suffering from nervousness and his wife gave him a dose of chloral and left the room to get him a glass of water. He took another dose and died soon afterwards although everything was done to save his life.

**Street Fakir.** — "Dr. Zambanda" was arrested Nov. 24 on a warrant issued from the court of Justice of the Peace Matthews charging him with extracting teeth for the purpose of advertising patent medicines and in violation of the law. The "doctor" has been holding forth on the streets, regaling the Carnival crowds and extracting molars for those who desired to have the operation performed free of charge, it is alleged, and the arrest was at the instance of one of the members of the state dental board.

**Wedded.** — Dr. Jennie Morrison, one of Milwaukee's well known professional women, and Alonzo Widger, a farmer of the town of Trenton, Washington county, were quietly married at Cedar Lake, Dec. 8. The announcement will come as a great surprise to many of the bride's friends in that city, as comparatively few of them knew of her intentions. A short time ago she sublet her flat for the remainder of the month, but she had continued to care for her patients as usual until Dec. 6, when she left the city, only her immediate relatives being aware of the object of her journey.

**Every Time a Dentist Weds.**—The fact that a La Junta dentist got married the other day was regarded by the Otero County Republican editor as sufficient provocation for this: "The courting days were when the vine and flower sang and whispered the ode of love, and Cupid 'neath the stars shot the arrow where they kept their tryst, and the days waxed ever golden, and though the season's flowers and vine are dead, the choicest flower of his heart remains; the one he calls his own." Wouldn't that put honey on your pancake?

**Swallows Teeth—Dies**—Roche Paquin, Fall River, Mass., who swallowed his false teeth while attending the performance at the Bijou theatre Thanksgiving day, died at Dr. Aldrich's Hospital. His death was unexpected, as he appeared to be resting very comfortably.

One unsuccessful attempt had been made to remove the teeth, which had worked down into the stomach. The first operation was simply an attempt on the part of doctors to remove the teeth from the stomach by natural means, but, that proving unsuccessful, an operation was to have been performed in the course of a day or two. His death was due to an injury to the lungs caused by perforation.

**Expert Thieves at Work.**—Evidence that the dental office thieves who committed so many daring crimes throughout the country last year, are again at work, was discovered in Reno, Cal., when Dr. Quinn, a dentist, opened his offices Sept. 30, and discovered that gold and instruments to the value of more than \$400 had been stolen during the night. An entrance was gained to the office through a transom. Dr. Quinn noticed two strangers around his place for several days. One professed to be a dentist and visited his office early in the week. Since the crime both men have disappeared. It is thought they are the guilty parties. Their work stamps them as experts.

**Dr. Albert Reibling,** a New York dentist, is dead after a peculiar illness, and a Mrs. Clara Walsh, who lived at the same address, is dangerously ill

and has been removed to the Fordham Hospital, suffering from a malady that resembles exactly the disease to which Reibling succumbed. Mrs. Walsh told Coroner Berry that a few days before Reibling bought a quantity of bologna sausage, which both ate, and that the following day they became very ill. She added that Reibling and she had a disagreement a few days previous, and that now she thinks it significant that he would not allow her to call a physician after they became so ill. The day after they became ill, she said, Reibling insisted that both eat more of the sausage, and that 'he day after he once again insisted that more of the sausage should be eaten. During his illness Mrs. Walsh said that Reibling repeatedly told her he was tired of living, but that it was not until Saturday night that she attached any significance to the remark. Then she called in Dr. Post, who diagnosed the illness as ptomaine poisoning. Soon afterward Reibling died. Coroner's Physician Reigelman performed an autopsy on Reibling, but failed to find any trace of the more common poisons. The police are trying to find out where the sausage came from, but have been unsuccessful so far.

**Recent Change in Location.**—F. H. Werner from Plano, Ill., to Hobart, Ind.; Arthur Glass from Cumberland, Ohio, to Lowell; Dr. Depoe from Lowell, Ohio, to Roseville; W. F. Jeffett from Marianna, Ark., to Oklahoma City, Okla.; J. C. Maloney to Ft. Madison, Iowa. J. A. Shelby is now with E. P. Hazen, Ft. Madison, Iowa. John Welch has located in Kankakee, Ill. J. A. Montieth has located in Rockford, Ill. Francis Lally has located in Moline, Iowa. W. E. Spence from Deming, N. M., to Iowa City, Iowa. J. A. Shelby, who has been with E. P. Hazen at Keokuk and E. E. Courtright of Ashland, Ill., have purchased the office of G. E. Haigh at Ft. Madison, Iowa. G. T. Brearley from Wadena, Minn., to Park Rapids. H. A. Boysen, late of Chicago, and formerly at Webster City, Iowa, has located in Waterloo. Paul Mitchell from Derby, Ind., to Cloverport, Ky. C. A. Sweeney from Independence, Iowa, to Dubuque. Walter McIntosh has located at Wellman, Iowa. A. D. Friedman from Milwaukee, Wis., to Springfield, Ill. Lawrence McCarty to Arenzville, Illinois. Clark Mertz from Bellaire, Ohio, to Sugar City, Colo. H. O. Scott to Barrington, Ill. E. Mihleis, Minneapolis, to New Ulm, Minn. W. A. Blockwell, Chicago College, to Carthage, Mo. H. A. Carson from Chicago to Elkhorn, Wis. D. S. Anderson re-located at Maroa, Ill. W. H. App from Maroa, Ill., to Decatur. W. F. Kenny from North Bend, Neb., to California. Dr. McClaren to North Bend, Neb. J. M. Osborn from Albion, Mich., to Kimberly, South Africa. George E. Haigh from Fort Madison, Iowa, to Jefferson City Mo. Dr. Spirk from South Dakota to Ft. Smith, Ark. Dr. Washburn from Kulm, N. D., to Fargo. J. R. Davis from Weeping Water, Neb., to Lincoln. E. L. Triel from Lafayette, Ind., to Delphi. J. J. Schultz from San Francisco, Cal., to Fresno. Milo Fear from Ottumwa, Iowa, to Green City, Mo. W. L. Anderson from Chicago to Chariton, Iowa. J. D. Gorbett from St. Joseph, Mo., to M rysville, Kan.

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